BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : VOL 12.2 b1 : 04.11.88 Test sheet Edition : 7.1.88 Replaces Test oil : ISO-4113 Combination no. : 0 401 846 865 Injection pump Pump designation : PE6P120A320RS3202 : 0 411 826 769 EP type number Governor Governor design. : RQV300..1025PA657-23 : 0 421 813 669 Governer no. Customer-spec. information Customer : VOLVO Engine : TD122A 35 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.60...3.70 Prestroke mm : (3.55...3.75) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 700 1st speed

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 21.3...21.5

100 s: (21.0...21.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 2.1...2.6 100 s: (1.8...2.8) cm3 : 0.5

Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed travel mm

: 1.50...1.90 rpm : 500 2nd speed

: 4.20...4.80 travel mm

3rd speed rpm : 800

: 6.30...6.70 travel mm 4th speed rpm : 1080

travel mm : 8.30...8.50

5th speed rpm : 1150

travel mm : 9.50...9.90

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed Aneroid pressure h: 900

Del.quantity : 213.0...218.0)

A01

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 11.20 Speed rpm : 1080...1090

2nd rack travel in: 4.00 rpm : 1140...1170 Speed

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

rpm : 100 Speed Minimum rack trave: 6.40 Speed rpm : 300

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 300...390 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed hPa : 900 Pressure

Rack travel mm : 12.20...12.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 11.20...11.40 2nd pressure hPa : 480

Rack travel in m: 11.90...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700 Speed

Del.quantity cm3/: 193.0...195.0 1000 s: (190.0...198.0)

BREAKAWAY

A02

1st version 1mm rack travel less than

full load rack tr: 11.20

rpm : 1080...1090 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...280.0 1000 s: (236.0...284.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 21.0...26.0 1000 s: (18.5...28.5) Spread cm3 : 5.00 1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Note remarks

Test sheet : VOL 10,0 W Edition : 24.06.88

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 846 869

Injection pump

Pump designation : PE6P120A320RS3118 EP type number : 0 411 826 726

Governor

Governor design. : RQV250...1100PA649-1

: 0 421 813 675 Governer no.

Customer-spec. information Customer : VOLVO

: THD 102 KD Engine

1st version kW : 250.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.60...2.70 Prestroke mm : (2.55...2.75)

Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 22.2...22.4

100 s: (21.9...22.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 4.3...4.5 Del.quantity cm3/: 2.7...3.3

100 s: (2.4...3.6)

Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

travel mm : 1.10...1.30

2nd speed rpm : 500

: 4.10...4.90 грт : 700 travel mm

3rd speed

travel mm : 6.30...6.70

4th speed rpm : 950

travel mm : 6.30...6.70

rpm : 1100 5th speed

travel m : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1175 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed Aneroid pressure h: 1200 Del.quantity : 222.0...224.0

1000 : (219.0...227.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 11.50

rpm : 1130...1140 Speed

2nd rack travel in: 4.00

rpm : 1210...1240 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

: 100 Speed rpm Minimum rack trave: 5.90 Speed rpm : 250

Rack travel in mm : 4.30...4.50

CONSTANT REGULATION

rpm : 250...420 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed POM hPa : 1200 Pressure

: 12.50...12.60 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.10...8.30

2nd pressure hPa : 700

Rack travel in m: 12.30...12.40

3rd pressure hPa : 120

Rack travel in m: 8.80...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed

rpm : 700

Del.quentity cm3/: 131.0...133.0

1000 s: (128.0...136.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 240.0...280.0

1000 s: (235.0...285.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.30...4.50
Del.quantity cm3/: 27.0...33.0

1000 s: (24.0...36.0)

cm3 : 5.00 Spread

1000 s: (7.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

APPLICATION

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Note remarks

Test sheet : MB 11,0 u Edition : 01.07.88 Replaces : 12.11.87 Test oil : ISO-4113

Combination no. : 0 401 846 872

Injection pump

Pump designation : PE6P120A320LS3815-12

EP type number : 0 411 826 770

Governor

Governor design. : RQV300..1050PA880

Governer no. : 0 421 813 671

Customer-spec, information

Customer : DAIMLER-BENZ

: OH 441 A Engine

1st version kW : 191.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quentity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter un : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.60...3.70 Prestroke mm

: (3.55...3.75) Rack travel in mm : 9.00...12.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.10...13.30

Del.quantity cm3/: 19.0...19.2

100 s: (18.7...19.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 1.4...2.2 100 s: (1.1...2.5)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed гра : 600

travel no : 4.90...5.10

3rd speed rpm : 800

: 5.80...6.20 rpm : 1080 travel m

4th speed

travel mm : 7.70...8.10

5th speed rpm : 1130

: 8.50...9.00 travel m

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Soced

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed

rpm : 600 Aneroid pressure h: 700

Del.quantity : 190.0...195.0)

Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 48...56

Testing:

1st rack travel in: 11.60 Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1170...1200 4th rack travel in: 1350

rpm : 0.00...1.50 Speed

LOW IDLE 1 Control lever

position degrees: 14...22

Testing:

Speed rpm : 100 Minimum rack trave: 6.90

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00

rpm : 390...430 Speed

TORQUE CONTROL

Dimension a mm : 1.30 2nd speed rpm : 1050

Rack travel in m: 12.30...12.50

3rd speed rpm : 700

Rack travel in m: 13.50...13.70

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600 hPa : 700 Pressure

Rack travel m : 13.10...13.30

Measurement

1/min : 600 Speed

1st pressure hPa : 350

Rack travel in m: 11.10...11.30

2nd pressure hPa : 550

Rack travel in m: 12.70...12.90 3rd pressure hPa : 780

Rack travel in m: 13.20...13.30

4th pressure hPa : 1100

Rack travel in m: 13.45...13.55

5th pressure hPa : -

Rack travel in m: 10.40...10.60

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100

Speed rpm : 1050 Del.quentity cm3/ : 184.0...187.0 1000 s: (181.0...190.0)

cm3 : 8.00 Spread

1000 s: (12.0) Aneroid pressure h: 1100

Speed rpm : 700 Del.quentity cm3/ : 204.0...208.0 1000 s: (201.0...211.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: rpm_ : 500 Speed

Del.quentity cm3/: 129.0...131.0 1000 s: (126.0...134.0)

cm3 : 8.00 Spread

BREAKAMAY

1st version

1mm rack travel less than

full load rack tr: 11.60

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed CD#

Del.quantity cm3/: 190.0...210.0

1000 s: (186.0...214.0)

Remerks:

Note remarks

: UNI 13,8 c1 : 16.06.88 Test sheet Edition Replaces : 26.2.88 Test oil : ISO-4113

Combination no. : 0 401 846 879

Injection pump

Pump designation : PE6P120A720R\$3192 EP type number : 0 411 826 761

Governor

Governor design. : RQV300...900PA857-1

Governer no. : 0 421 813 683

Customer-spec. information Customer : IVECO-UNIC

Engine : 8210.42.101

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter m : 0,8

Test lines : 1 680 750 067

Outside diameter x Hall thickness

x Length me : 6.00x1.50x1000

(W) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.40...3.50 Prestroke m

: (3.35...3.55) Rack travel in mm : 9.00...12.00

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: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - D : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm : 900 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 23.9...24.1

100 s: (23.6...24.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 1.8...2.4

100 s: (1.5...2.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed : 0.70...0.90 travel m

2nd speed rpm : 550

travel m : 4.00...4.60

rpm : 800 3rd speed

: 6.60...6.90 travel m

rpm : 900 4th speed

: 7.70...7.90 travel m

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 950

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900 Aneroid pressure h: 900

Del.quentity : 259.U...241.U (236.0...244.0)

cm3 : 5.00 1000 : (9.00) Soread

RATED SPEED

1st version Control lever

position degrees: 57...65

Testing:

1st rack travel in: 12.20 Speed rpm : 940...950 2nd rack travel in: 4.00 rpm : 1060...1090 Speed

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 4...12

Testing:

rpm : 100 Speed Minimum rack trave: 6.50 Speed rpm : 300

Rack travel in mm: 4.90...5.10

CONSTANT REGULATION

rpm : 370...490 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 900 : 500 Speed Pressure

Rack travel mm : 13.20...13.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.00...9.20

2nd pressure hPa : 520

Rack travel in m: 12.20...12.30

3rd pressure hPa : 330 Rack travel in m: 9.80...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm: 500 Del.quantity cm3/: 233.0...239.0 1000 s: (230.0...242.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quentity cm3/ : 109.0...111.0 1000 s: (106.0...114.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

rpm : 940...950 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quentity cm3/ : 235.0...265.0 1000 s: (231.0...269.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 18.0...24.0 1000 s: (15.0...27.0)

cm3 : 8.00 1000 s: (12.00) Spread

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid. the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 6- 3- 5- 2- 4- 1 Test sheet : MB 11,0 s 9 : 24.06.88 Edition : 22.4.88 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 401 846 880 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PE6P110A320LS3835-1 EP type number : 0 411 816 755 BASIC SETTING Governor Governor design. : RQ300/1050PA187-19 1st speed rpm : 750 : 0 421 801 428 Governer no. Rack travel in mm : 13.00...13.10 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 12.6...12.8 100 s: (12.2...13.0) Engine : OH441 1st version kW : 160.0 Spread cm3 : 0.4: 2100 Rated speed 100 s: (0.7) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm : 8.3...8.6 Del.quantity cm3/ : 1.5...2.1 Test oil inlet temp. OC : 38...42 100 s: (1.2...2.3) Overflow valve Spread cm3 : 0.4: 1 417 413 025 100 s: (0.7) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -1 Over flow Speed rpm : 650 Rack travel in mm : 13.80...14.40 quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP Opening 1st version pressure, bar : 172...175 rpm : 750 Speed Del.quantity : 126.0...128.0 1000 : (122.5...130.5) Test lines : 1 680 750 015 cm3 : 4.00 1000 : (7.50) Spread Outside diameter x Wall thickness RATED SPEED : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: Set equal delivery quant. Speed rpm: :650 Rack travel in mm: 14.1 per values BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 12.00

Speed

rpm : 1095...1110

2nd rack travel in: 4.00 Speed rpm : 1155...1185 4th rack travel in: 1300 Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.0

Testing:

Speed rpm : 200 Hinimum rack trave: 8.70 Speed rpm : 300
Rack travel in mm : 6.80...7.20
Rack travel in mm : 2.00

rpm : 400...440 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del.quantity cm3/ : 138.0...142.0
1000 s: (135.0...145.0)
Spread cm3 : 7.00

1000 s: (10.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Remarks:

APPLICATION Omnibus

Note remarks

Test sheet : VOL 10,0q13 Edition : 07.10.88 Replaces : 29.4.88 Test oil : ISQ-4113

Combination no. : 0 401 846 883

Injection pump

Pump designation : PE6P110A320RS3108-1

EP type number : 0 411 816 757

Governor

Governor design. : RQV250...1100PA649

Governer no. : 0 421 813 346

Customer-spec. information Customer : VOLVO

: THO 102 KB Engine

1st version kW : 212.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.00...3.10 Prestroke ma

: (2.5...3.15)
Rack travel in mm: 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.8)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 3.0...3.4

100 s: (2.7...3.6)

cm3 : 0.3Spread 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.10...1.30 travel mm

2nd speed rpm : 500

: 4.10...4.90 travel mm

3rd speed rpm : 700

: 6.30...6.70 travel mm

4th speed rpm : 950

travel mm : 6.30...6.70

5th speed rpm : 1100

travel m : 7.00...7.50

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1175 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed гра : 700 Aneroid pressure h: 1200

: 183.0...185.0 Del.quantity

1000 : (180.0...188.0)

Spread

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 12.90

rpm : 1130...1140 Speed

2nd rack travel in: 4.00

rpm : 1215...1245 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 7...15

Testing:

Speed rpm : 100

Minimum rack trave: 7.20 Speed rpm : 250

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

rpm : 250...425 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 1200 Speed Pressure

Rack travel mm : 13.90...14.00

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.40

2nd pressure hPa : 240

Rack travel in m: 10.40...10.50

3rd pressure hPa : 800

Rack travel in m: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700 Speed

Del.quantity cm3/: 111.5...114.5 1000 s: (109.0...117.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.90

Speed rpm : 1130...1140

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quentity cm3/: 160.0...190.0 Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.60...5.80
Del.quantity cm3/: 30.0...34.0

1000 s: (27.5...36.5)

cm3 : 3.00 Spread

1000 s: (6.00)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SSC 10,5 e Edition : 05.08.88 Replaces Test oil : ISO-4113 Combination no. : 0 401 846 884 Injection pump Pump designation : PE6P130A320LS3210 EP type number : 0 411 836 713 Governor Governor design. : RQV400...750PA607 Governer no. : 0 421 813 313 Customer-spec. information Customer : SSCH Engine : UD 25.L6 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate : 0,8 diameter mm : 1 680 750 067 Test lines Outside diameter x Hall thickness : 6.00x1.50x1000 x Longth mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values BEGINNING OF PELIVERY : 2.80...2.90 : (2.75...2.95)

Test pressure, bar: 25...27 Prestroke mm Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st seeed rpm : 700 Rack travel in mm : 13.10...13.20 Del.quantity cm3/: 38.8...39.1 100 s: (38.4...39.4) cm3 : 0.6Spread 100 s: (1.0) 2nd speed rpm : 400.0 Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 2.7...3.3 100 s: (2.3...3.7) cm3 : 1.0 Spread 100 s: (1.4) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 400 : 0.50...0.90 travel m rpm : 500 2nd speed

: 1.90...2.10 travel m 3rd speed rpm : 600 : 1.90...2.10 travel m 4th speed rpm : 750 : 4.30...5.50 travel m

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 700 Speed : 388.0...391.0 Del.quantity 1000 : (384.5...394.5) cm3: 6.00 Spread 1000 : (10.00)

RATED SPEED

1st version

Testing: 1st rack travel in: 12.10 rpm : 750...755 Speed

A13

2nd rack travel in: 4.00 Speed rpm : 775...790 4th rack travel in: 950

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.7

Testing:

Speed rpm : 100 Minimum rack trave: 7.20 Speed rpm : 400 Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00

Speed rpm : 650...750

BREAKAHAY

1st version 1mm rack travel less than

full load rack tr: 12.10 rpm : 750...755 Speed

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 27.0...33.0
1000 s: (23.0...37.0)
Spread cm3 : 10.00

1000 s: (14.00)

Remarks:

APPLICATION Generator set

Note remarks

: STE 10.0 f Test sheet Edition : 19.05.88

Replaces

Test oil : ISO-4113

Combination no. : 0 401 846 885

Injection pump

Pump designation : PE6P110A720RS3204 EP type number : 0 411 816 754

Governor

Governor design. : R9300/1100PA412-3 Governer no. : 0 421 801 436

Customer-spec. information : STEYR Customer

: MD615.63 Engine

: 204.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet presc., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Inso. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke m : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 16.2...16.4

100 s: (15.9...16.7)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 300.0 2nd speed Rack travel in mm : 4.4...4.6 Del.quantity cm3/: 2.0...2.5

100 s: (1.7...2.7)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 600 Speed

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 900

Del.quentity : 102.0...167.0)

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version

Setting point:

Speed : 600 Rack travel in mm: 16.0

Testing:

1st rack travel in: 11.60

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

rom : 1240...1270 Speed

A15

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point wout bumper spring

Speed rpm : 300 Rack travel in mm : 4.5

Testing:

Speed rpa : 100 Minimum rack trave: 6.00 Speed rpm : 300 Rack travel in mm : 4.40...4.60

Rack travel in mm : 2.00 rpm : 360...400 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 hPa : 900 Speed Pressure

Rack travel mm : 12.60...12.70

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.60...9.80

2nd pressure hPa : 600
Rack travel in m: 11.90...12.00
3rd pressure hPa : 340

Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm_ : 700 Speed

Del.quantity cm3/: 178.0...182.0 1000 s: (175.0...185.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quentity cm3/: 125.0...128.0
1000 s: (122.5...130.5)

BREAKAHAY

1st version 1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quentity cm3/ : 240.0...270.0

1000 s: (236.0...274.0)

LOW IDLE

грж : 300 Speed

Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 20.0...25.0 1000 s: (17.5...27.5)

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : HZU 11,9 a : 23.09.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 846 886 Injection pump Pump designation : PE6P120A320RS3213 EP type number : 0 411 826 779 Governor Governor design. : RQV250...1000PA891 Governer no. : 0 421 813 704

Customer-spec. information Customer : HAEP

: X6130 Z1 Engine

1st version kW : 206.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38 ... 42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 443 022 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter x Wall thickness

x Length am : 8.00x2.00x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.00...3.10 Prestroke mm : (2.95...3.15) Rack travel in mm: 9.00...12.00

A17

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 22.3...22.7

100 s: (22.0...23.0)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm : 6.6...6.8 Del.quantity cm3/: 2.5...3.1 100 s: (2.2...3.4)

cm3 : 0.6Spread 100 s: (0.9)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.20...1.40 travel mm

2nd speed rpm : 500

: 3.40...3.80 travel mm

3rd speed

rpm : 750 : 5.50...5.90 travel mm

rpm : 1000 4th speed

travel mm : 7.90...8.10

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1025 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 700

: 223.0...227.0 Del.quantity

1000 : (220.0...230.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 61...69

Testing:

1st rack travel in: 10.70

Speed rpm : 1040...1050

2nd rack travel in: 4.00

rpm : 1115...1145 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 8.20

Speed rpm : 250 Rack travel in mm : 6.60...6.80

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed ` Pressure hPa : 700

Rack travel mm : 11.70...11.80

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 400

Rack travel in m: 11.10...11.20
3rd pressure hPa : 300
Rack travel in m: 9.90...10.10

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500 Speed

Det.quantity cm3/: 123.0...127.0

1000 s: (120.0...130.0)

BREAKAWAY

A18

1st version 1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 11_0 s12 Edition : 19.05.88 Replaces Test oil : ISO-4113 Combination no. : 0 401 846 887 Injection pump Pump designation : PE6P110A320LS3835-1 EP type number : 0 411 816 755 Governor Governor design. : RQ300/950PA187-22 Governer no. : 0 421 801 440 Customer-spec, information Customer : DAIMLER-BENZ Engine : 0M441 1st version kW : 150.0 : 1900 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 quantity min. 1/h: 100...120 : 0 681 343 009 assembly pressure, bar : 172...175

Overflow Test nozzle holder Opening Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 12.8...13.0

100 s: (12.5...13.2)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 300.0 2nd speed Rack travel in mm : 8.8...9.0 Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.3)

cm3 : 0.4 Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position Degree: -1

Speed rpm : 650

Rack travel in mm: 13.60...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 950 Speed

Del.quantity : 128.0...130.0 1000 : (125.5...132.5)

cm3 : 4.00 Spread 1000 : (7,50)

RATED SPEED

1st version

Setting point:

Speed rpm : 650 Rack travel in mm : 14.0

Testing:

1st rack travel in: 11.50 Speed rpm : 995...1010 2nd rack travel in: 4.00

Speed rpm : 1040...1070 4th rack travel in: 1300

Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 6.9

Testing:

rpm : 200 Speed Minimum rack trave: 8.50

Speed rpm : 300

Rack travel in mm: 6.80...7.00
Rack travel in mm: 2.00
Speed rpm: 370...410

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050 2nd speed rpm : 600 3rd speed rpm : 900

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/ : 123.0...127.0 1000 s: (120.0...130.0)

Spread cm3 : 6.00

1000 s: (9.)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 995...1010

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

Note remarks

: MB 11,0 s13 Test sheet Edition : 04.11.88

Replaces

Test oil : ISO-4113

Combination no. : 0 401 846 888

Injection pump Pump designation : PE6P110A320LS3835-1

EP type number : 0 411 816 755

Governor

Governor design. : RQV300..950PA884-3

Governer no. : 0 421 813 706

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM441

1st version kW : 150.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm : (3.95...4.15)

Rack travel in mm : 9.00...12.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 950 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 12.8...13.0

100 s: (12.5...13.2)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 8.3...8.6 Del.quantity cm3/: 1.5...2.1

100 s: (1.2...2.3) cm3 : 0.4

Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rpm : 300

: 1.10...1.30 travel mm

2nd speed rpm : 800

: 6.30...6.60 travel mm

3rd speed rpm: 1000

travel mm : 8.30...8.70

rpm : 1060 4th speed

: 9.20...9.70 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1000 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 950 Speed

: 128.0...130.0 Delouantity

1000 : (125.5...132.5)

Spread

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever position degrees: 50...58

Testing:

1st rack travel in: 11.50

rpm : 990...1000 Speed

2nd rack travel in: 4.00

rpm : 1060...1090 Speed

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Testing:

Speed rpm : 200 Minimum rack trave: 10.00

rpm : 300 Speed

Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

rpm : 300...450 Speed

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/ : 119.0...123.0 1000 s: (116.0...126.0)

cm3 : 6.00 1000 s: (9.00) Spread

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

A22

Remarks:

Note remarks

: VOL 10.0 v5 : 19.08.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 846 890

Injection pump

Pump designation : PE6P110A320RS3080-3

EP type number

: 0 411 816 758

Governor

Governor design. : RQV250....950PA657-

: 0 421 813 709 Governer no.

Customer-spec. information : VOLVO Customer

Engine : TD102FH

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10

: (2.95...3.15)

Rack travel in mm: 9.00...12.00 Firing order: 1-5-3-6-2-4 firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 17.9...18.1

100 s: (17.6...18.4)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm : 3.8...4.0 Del.quantity cm3/: 1.5...1.9

100 s: (1.2...2.1)

cm3 : 0.3Spread 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL rpm : 250 1st speed

: 1.00...1.40 travel mm

2nd speed rpm : 350

travel mm : 2.20...2.80

3rd speed rpm : 750

travel mm : 6.30...6.70

4th speed rpm : 985

travel mm : 8.20...8.40

5th speed rpm : 1060

travel mm : 9.10...9.50

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 985

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed Aneroid pressure h: 900

Del.quantity : 179.0...181.0

1000 : (176.0...184.0)

Spread

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing:

1st rack travel in: 11.60 Speed rpm : 980...990

2nd rack travel in: 4.00

rpm : 1040...1070 Speed

4th rack travel in: 1200 rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 4...12

Testing:

rpm : 100 Speed Minimum rack trave: 5.30 Speed rpm : 250 Rack travel in mm : 3.80...4.00

CONSTANT REGULATION

rpm : 250...360 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed Lbm : 500 hPa : 900 Pressure

Rack travel mm : 12.60...12.70

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.90...10.10

2nd pressure hPa : 125

Rack travel in m: 10.20...10.30

3rd pressure hPa : 490

Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700 Speed

Del.quentity cm3/: 129.5...132.5

1000 s: (127.0...135.0)

BREAKAMAY

1st version

A24

1mm rack travel less than

full load rack tr: 11.60 rpm : 980...990 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 160.0...190.0 1000 s: (156.0...194.0)

Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00 Del.quantity cm3/: 15.0...19.0

1000 s: (12.5...21.5)

Spread cm3 : 3.001000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.50...3.60 : (3.45...3.65) Prestroke mm Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 Test sheet : UNI 13,8 f : 02.09.88 Edition Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 0 401 846 891 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PE6P12OA72ORS3216 EP type number : 0 411 826 781 BASIC SETTING Governor Governor design. : RQV300...975PA898K 1st speed rpm: 975 : 0 421 815 197 Governer no. Rack travel in mm : 13.10...13.20 Customer-spec. information : IVECO-UNIC Customer Del.quantity cm3/: 24.1...24.3 Engine : 8210.42.269 100 s: (23.8...24.6) 1st version kW : 261.0 Spread cm3 : 0.5 Rated speed : 1950 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm: 300.0 Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 2.4...3.0 Test oil inlet temp. OC : 38...42 100 s: (2.1...3.3) Overflow valve cm3 : 0.8Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 300 Opening travel mm : 1.60...2.00 : 207...210 pressure, bar rpm : 400 2nd speed : 3.20...4.00 travel mm 3rd speed rpm: 750 Orifice plate : 0,8 diameter mm : 6.70...7.10 travel mm 4th speed rpm : 975 : 9.60...9.80 travel mm Test lines : 1 680 750 067 rpm : 1200 5th speed : 13,00,...14,00 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x1.50x1000 x Length mm

GUIDE SLEEVE POSITION
Control-lever position
Degree: -1
Speed rpm : 1015
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Sneed

Speed rpm: 975 Aneroid pressure h: 1200

A25

(A) Injection pump setting values

Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Insp. values in parentheses

Del.quantity : 241.0...246.0) : 5.00 Spread

cm3 1000 : (9,00)

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 12.10 rpm : 1015...1025 Speed

2nd rack travel in: 4.00

Speed rpm : 1085...1115

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Testing:

rpm : 100 Speed Minimum rack trave: 6.90 : 300 Speed rpm

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 280...400

TORQUE CONTROL

Dimension a mm : 1.60

Torque control curve - 1st version

1st speed rpm : 975

Rack travel in m: 13.10...13.20

2nd speed rpm : 830

Rack travel in m: 12.70...12.80

3rd speed rpm : 600

Rack travel in m: 11.80...12.10
4th speed rpm : 350
Rack travel in m: 11.50...11.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 975 rpm hPa : 1200 Pressure

Rack travel mm : 13.10,..13.20

Measurement

1/min: 975 Speed

1st pressure hPa : -

Rack travel in m: 9.00...9.10

2nd pressure hPa : 700

A26

Rack travel in m: 12.00...12.10

3rd pressure hPa : 400

Rack travel in m: 9.80...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 350 Speed

Del.quantity cm3/: 169.0...175.0 1000 s: (166.0...178.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 111.0...113.0 1000 s: (108.0...116.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 240.0...260.0

1000 s: (236.0...264.0)

LOW IDLE

Speed rpm: 300
Rack travel in mm: 5.30...5.50
Del.quantity cm3/: 24.0...30.0

1000 s: (21.0...33.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 25...27 Note remarks Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Test sheet : MB 14,6 e : 7.10.88 Edition : 8- 7- 2- 6- 3- 5-Firing order : 12.12.86 Replaces : ISO-4113 Test oil Combination no. : 0 401 848 708 : 0-45-90-135-180-225-Phasing Injection pump 270-315 Pump designation : PE8P110A320L\$3802 Tolerance + - 0 : 0.50 (0.75) : 0 411 818 705 EP type number Governor Time to cyl. no. : 8 Governor design. : R9300/1150PA187-3 Governer no. : 0 421 801 133 BASIC SETTING Customer-spec. information rpm : 750 1st speed : DAIMLER-BENZ Customer Rack travel in mm : 11.70...11.80 Engine : 0M422 Del.quantity cm3/: 11.3...11.5 1st version kW : 206.0 : 2300 Rated speed 100 s: (11.0...11.7) : 206,0 2nd version kW : 2300 Rated speed Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.7) 2nd speed rpm: 300.0
Rack travel in mm: 7.9...8.1
Del.quantity cm3/: 1.5...2.1 Test oil inlet temp. OC : 38...42 Overflow valve 100 s: (1.2...2.3) : 1 417 413 025 Spread cm3 : 0.4100 s: (0.7) Inlet press., bar: 1.50 1st speed rpm : 1150 Rack travel in mm : 12.3...12.4 Over flow Del.quantity cm3/: 12.7...12.9* quantity min. 1/h: 100...120 100 s: (-) Test nozzle holder : 0 681 343 009 cm3 : 0.4Spread 100 s: (0.8) rpm : 300 2nd speed Rack travel in mm : 8.00...8.10 Opening Del.quantity cm3/ : 1.5...2.1 * pressure, bar : 172...175 100 s: (-) cm3 : 0.4Spread Test lines : 1 680 750 015 100 s: (0.7) Outside diameter GUIDE SLEEVE POSITION x Wall thickness Control-lever position x Length mm : 6.00x1.50x600 Degree: -1 Speed rpm : 650 (A) Injection pump setting values Rack travel in mm : 13.00...14.00 Insp. values in parentheses

FULL LOAD DELIV. AT FULL LOAD STOP

rpm : 750

1st version

Speed

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Del.quantity : 113.0...117.5) cm3 : 4.00 1000 : (7.00) Spread 2nd version Speed rpm : 1150 Del.quantity cm3/ : 127.0...129.0 * 1000 s: (124.0...132.0) cm3 : 4.0 Spread 1000 s: (8.0) RATED SPEED 1st version Setting point: Speed rpm : 650 Rack travel in mm : 13.5 Testing: 1st rack travel in: 10.70 rpm : 1195...1210 Speed 2nd rack travel in: 4.00 Speed rpm : 1240...1270 4th rack travel in: 1350 rpm : 0.00...1.50 Speed 2nd version Setting point: : 650 * rpm Rack travel in mm: 13.5 Testing: 1st rack travel in: 11.30 Speed rpm : 1195...1210 2nd rack travel in: 4.00 Speed rpm : 1235...1265 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Rack travel in mm: 8.1 Testing: Speed rpm : 100 Minimum rack trave: 10.20 rpm : 300 Rack travel in mm : 8.00...8.20 Rack travel in mm : 2.00 rpm : 420...460 : 550 Speed rpm Maximum rack trave: 1.80 FUEL DELIVERY CHARACTERISTICS

2nd version rpm : 600 Speed Del.quantity cm3/: 118.0...122.0 * 1000 s: (115.0...125.0) Spread cm3 : 8.01000 s: (1.1)

RACK STOP ADJUSTMENT

rpm : 600 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70 Speed rpm : 1195...1210

2nd version 1mm rack travel less than full load rack tr: 11.30 Speed rpm : 1195...1210

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

See VDT-I-401/102. Version 1: Without return-flow restriction Version 2: With return-flow restriction * Version 2

1st version

A28

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order : MB 14,6 e 4 : 16.05.88 : 13.5.87 4- 1 Test sheet Edition Replaces Test oil : ISO-4113 Phasing : 0-45-90-135-180-225-Combination no. : 0 401 848 708 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P110A320LS3802-10 Time to cyl. no. : 8 EP type number : 0 411 818 710 Governor BASIC SETTING Governor design.: RQ300/1150PA187-3 Governer no. : 0 421 801 133 rpm : 750 1st speed Rack travel in mm : 11.70...11.80 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 11.3...11.5 : 0M422 Engine 100 s: (11.0...11.7) : 206.0 1st version kW : 2300 Rated speed Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.7) 2nd speed rpm : 300.0 Rack travel in mm : 7.9...8.1 Test oil inlet temp. OC : 38...42 Del.quantity cm3/: 1.5...2.1 Overflow valve 100 s: (1.2...2.3) : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Over flow Control-lever position quantity min. 1/h: 100...120 Degree: -1 Speed rpm: 650 Rack travel in mm: 13.00...14.00 Test nozzle holder : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version rpm : 750 Speed Del.quantity Test lines : 1 680 750 015 cm3 : 4.00 1000 : (7.00) Spread Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

: 113.0...115.0 1000 : (110.5...117.5)

RATED SPEED

1st version

Setting point:

: 650 rpm Rack travel in mm: 13.5

Testing:

1st rack travel in: 10.70

B01

(A) Injection pump setting values

per values ____

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant.

rpm : 1195...1210 Speed 2nd rack travel in: 4.00 Speed rpm : 1240...1270

4th rack travel in: 1350 Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 8.1

Testing:

rpm : 100 Speed Minimum rack trave: 10.20 rpm : 300 Speed

Rack travel in mm : 8.00...8.20

Rack travel in mm : 2.00 Speed rpm : 420...460

Speed rpm : 550 Maximum rack trave: 1.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1150 Del.quantity cm3/ : 132.0...136.0 1000 s: (129.0...139.0)

Spread cm3 : 5.00

1000 s: (8,00)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

:

Note remarks

Test sheet : NB 14,6 c 2 : 07.10.88 Edition Replaces : 5.85

: ISO-4113 Test oil

Combination no. : 0 401 848 712

Injection pump

Pump designation : PE8P110A320LS3802-10

EP type number : 0 411 818 710

Governor

Governor design. : RQV300...1150PA524-2 Governer no. : 0 421 813 264

Customer-spec. information

: DAIMLER-BENZ Customer

: 04422 Engine

1st version kW : 206.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 : (3.95...4.15)

Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 11.4...11.6

100 s: (11.1...11.8)

cm3 : 0.4Spread

100 s: (-)

2nd speed rpm: 300.0 Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 1.5...2.1

100 s: (1.2...2.3)

cm3 : 0.4100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

Spread

1st speed rpm : 300

: 1.60...1.80 travel ma

2nd speed rpm : 800

: 5.80...6.20 travel mm

3rd speed rpm : 1200

travel mm : 8.20...8.40

4th speed rpm : 1260

: 9.60...10.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1190 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Del.quantity : 114.0...116.0

1000 : (111.5...118.5)

cm3 : 4.00 1000 : (-) Spread RATED SPEED 1st version Control lever

Testing:

1st rack travel in: 10.70 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 rpm : 1240...1270 Speed

position degrees: 51...59

LOW IDLE 1 Control lever position degrees: 18...26

Testing:

rpm : 100 Speed Minimum rack trave: 9.60 Speed rpm : 300 Rack travel in mm : 7.90...8.10 Rack travel in mm : 2.00 rpm : 430...490 Speed

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 1150 Speed rpm Del.quentity cm3/: 132.0...137.0 1000 s: (129.0...140.0)

cm3 : 7.00 Spread 1000 s: (10.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

: 100

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note reserks : MB 14,6 m 4 : 07.10.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 848 740 Injection pump Pump designation : PEBP110A320LS3B13-10 EP type number : 0 411 818 712 Governor Governor design. : RQV350...1150PA378-8 Governer no. : 0 421 813 725 Customer-spec. information Customer : DAIMLER-BENZ : 04422 Engine : 206.0 1st version kW : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 : 1 680 750 015

Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 1150 1st speed

Rack travel in mm : 11.50...11.60

Del.quentity cm3/: 13.1...13.3

100 s: (12.8...13.5)

cm3 : 0.4Spread

100 s: (0.8)

2nd speed rpm : 350.0 Rack travel in mm : 7.4...7.6 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0)

Spread cm3 : 0.4100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350 travel m : 1.50...1.70

rpm : 500 2nd speed : 1.70...1.90 travel mm

3rd speed rpm : 800

travel ma : 4.60...4.90

4th speed rpm : 1200 travel mm

: 8.20...8.50

: 1300 5th speed rpm

: 10.00...10.50 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1:50 Del.quentity : 131.0...135.5)

Cm3 : 4.00 Spread 1000 : (8,00)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.50 Speed

rpm : 1190...1200 2nd rack travel in: 4.00 Speed rpm : 1250...1280

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 10...14

Testing:

rpm : 100 Speed Minimum rack trave: 8.70

Speed rpm : 350 Rack travel in mm : 7.40...7.60

CONSTANT REGULATION

rpm : 385...495 Speed

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

: 600 Speed FPM

Del.quentity cm3/: 109.0...113.0 1000 s: (106.0...116.0)

cm3 : 6.00 Spread 1000 s: (9.00)

: 1150 Speed rpm -Del.quantity cm3/: 84.0...87.0 * 1000 s: (81.0...90.0)

cm3 : 6.00 Spread

1000 s: (9.00)

BREAKAHAY

1st version 1mm rack travel less than

full load rack tr: 10.50

Speed гра : 1190...1200 STARTING FUEL DELIVERY

Speed rpm : 100 Del.quentity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

:

* = Set at reduced-delivery stop.

Note remarks

: MB 14,6 o 1 : 05.08.88 Test sheet Edition Replaces

: 2.85 : ISO-4113 Test oil

Combination no. : 0 401 848 744

Injection pump

Pump designation : PE8P120A320LS3816-10

EP type number : 0 411 828 715

Governor

Governor design. : R9V350...1150PA590-1

: 0 421 813 3621 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

: 0H422A Engine

: 243.0 1st version kW Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter am : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15) Rack travel in mm : 9,00,..12.00

: 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rom: 1150 1st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 15.8...16.0

100 s: (15.5...16.3)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 1.2...1.8 100 s: (0.9...2.1)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed Aneroid pressure h: 700

158.0...160.0 1000 : (155.0...163.0) cm3 : 5.00 1000 : (9.00) Del.quantity

Spread

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing: 1st rack travel in: 10.00 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 rpm : 1270...1300 Speed 4th rack travel in: 1400 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 6...14 Testing: : 100 Speed rom . Minimum rack trave: 6.00 Speed rpm : 350 Rack travel in mm : 4.90...5.10 CONSTANT REGULATION rpm : 370...480 Speed TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 11.00...11.10 2nd speed rpm : 850 Rack travel in m: 11.20...11.40 3rd speed rpm : 750 Rack travel in m: 11.30...11.50 Aneroid/Altitude Compensator Test 1st version Setting pm : 500 hPa : 700 Speed rpm Pressure Rack travel mm : 11.50...11.70 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.50...10.60 2nd pressure hPa : 470 Rack travel in m: 11.40...11.50 3rd pressure hPa : 400 Rack travel in m: 10.90...11.00 START CUT-OUT 1/min : 270 (290) Speed FUEL DELIVERY CHARACTERISTICS

Speed rpm : 600
Del.quantity cm3/ : 166.0...172.0
1000 s: (163.0...175.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: Speed rpm : 500
Del.quantity cm3/ : 140.0...142.0
1000 s: (137.0...145.0)
Spread cm3 : 8.00
1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00 Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

608

1st version

Aneroid pressure h: 700

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1- 2- 4- 5- 6- 3-Note remarks : BAO 21.2 a : 05.07.88 Test sheet Edition Phasing : 0-45-90-135-180-225-270-315 Replaces : 4.85 : ISO-4113 Tolerance + - 0 Test oil : 0.50 (0.75) Combination no. : 0 401 848 750 Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE8P130A520/4RS3085 EP type number : 0 411 838 705 rpm: 700 1st speed Governor Governor design. : R9V400...750PA618-1 Rack travel in mm : 8.50...8.60 Governer no. : 0 421 813 330 Del.quantity cm3/: 19.1...19.5 Customer-spec. information 100 s: (19.1...19.5) Customer : BAUDOUIN Engine : 8915 Spread cm3 : 0.5TEST BENCH REQUIREMENTS 100 s: (0.9) rpm : 400.0 Test oil 2nd speed inlet temp. OC : 38...42 Rack travel in mm: 3.9...4.1 Del.quantity cm3/: 2.3...2.9 Overflow valve 100 s: (2.3...2.9) : 1 417 413 025 cm3 : 0.8Spread 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump Test nozzle holder with governor assembly : 1 688 901 019 **GUIDE SLEEVE TRAVEL** Opening. 1st speed rpm : 400 : 207...210 travel mm : 0.90...1.10 pressure, bar 2nd speed rpm : 475 : 1.80...2.30 Orifice plate travel mm diameter mm : 0.8 3rd speed rpm : 600 : 1.80...2.30 travel mm : 750 4th speed rpm Test lines : 1 680 750 074 : 4.70...5.70 travel mm Outside diameter FULL LOAD DELIV. AT FULL LOAD STOP x Wall thickness x Length mm : 6,00x1,50x1000 1st version rpm : 700 Speed : 191.0...195.0 (A) Injection pump setting values Del.quantity 1000 : (191.0...195.0) Insp. values in parentheses Set equal delivery quant. : 5.00 cm3 Spread 1000 : (9.00) per values BEGINNING OF DELIVERY RATED SPEED Test pressure, bar: 25...27 1st version

Control lever

position degrees: 44...52

B09

Prestroke mm

: 3.20...3.30

Rack travel in mm : 9.00...12.00

: (3.15...3.35)

Testing:
1st rack travel in: 7.50
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 775...785
4th rack travel in: 900
Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 12...20

Testing:

Speed rpm: 100
Minimum rack trave: 5.60 Speed rpm : 400 Rack travel in mm : 3.90...4.10

START CUT-OUT

Speed 1/min: 320 (340)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 7.50 Speed rpm : 750...755

Remarks:

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: FIA 17_2 d Test sheet Edition : 25.03.88 : 26.2.88 Replaces : ISO-4113 Test oil

: 0 401 848 757 Combination no.

Injection pump

Pump designation : PE8P120A920/5LS3827

EP type number : 0 411 828 712

Governor

Governor design. : RQV300...900PA475-1

Governer no. : 0 421 813 420

Customer-spec. information

Customer : IVECO-FIAT

Engine : 8280.22.201

: 309.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

: 0,8

diameter mm

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm : (3.45...3.65)

Rack travel in mm : 9.00...12.00

firing order : 1-8-4-3-6-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 21.2...21.4

100 s: (20.9...21.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 1.7...2.3

100 s: (1.4...2.6)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.40...1.80 travel mm

rpm : 450 2nd speed

travel mm : 3.60...4.00

3rd speed rpm : 750

: 6.10...6.50 travel mm

4th speed 900 LDM

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 960

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 900 Speed Aneroid pressure h: 900

Del.quentity : 212.0...217.0)
1000 : (209.0...217.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 11.60 rpm : 940...950 Speed 2nd rack travel in: 4.00

Speed rpm : 1050...1080

4th rack travel in: 1200 rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

rpm : 100 Speed Minimum rack trave: 6.40

Speed rpm : 300 Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

rpm : 310...415 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 900 Speed Pressure

Rack travel mm : 12.60...12.70

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.00...9.30

2nd pressure hPa : 440 Rack travel in m: 11.60...11.70 3rd pressure hPa : 340

Rack travel in m: 9.60...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 550
Del.quantity cm3/ : 227.0...235.0
 1000 s: (224.0...238.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 132.0...134.0 1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

rpm : 940...950 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 170.0...200.0 1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 k B : 24.06.88 Edition : 30.3.87 Replaces Test oil : ISO-4113

Combination no. : 0 401 848 762

Injection pump

Pump designation : PE8P120A320LS3807-10

EP type number : 0 411 828 713

Governor

Governor design. : RQV300...1150PA545-7 Governer no. : 0 421 813 595

Customer-spec. information

Customer : DAINLER-BENZ

Engine : OH 422 A

1st version kW : 243.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 9.00...12.00

: 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 15.9...16.1

100 s: (15.6...16.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.0...5.2 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1) cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.60...1.80

2nd speed rpm : 800

travel nm : 6.00...6.20

3rd speed rpm : 1200

travel nm : 8.00...8.20

4th speed rpm : 1300

travel mm : 9.00...9.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1190 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 700

Del.quantity : 159.0...161.0 1000 : (156.0...164.0) cm3 : 5.00

Spread 1000 : (9,00)

RATED SPEED

1st version Control lever

position degrees: 46...54

Testing:

1st rack travel in: 9.70 Speed rpm : 1190...1200 2nd rack travel in: 4.00 Speed rpm : 1270...1300

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 15...23

Testing:

rpm : 100 Speed Minimum rack trave: 6.70 rpm : 300 Soced

Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

rpm : 300...400 Speed

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.70...10.80

2nd speed rpm : 750

Rack travel in m: 11.00...11.20

3rd speed rpm : 700

Rack travel in m: 11.00...11.20

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed COM hPa :-Pressure

Rack travel mm : 10.00...10.30

Measurement

1/min : 500 Speed

1st pressure hPa : 450

Rack travel in m: 10.10...10.20

2nd pressure hPa : 500

B14

Rack travel in m: 10.50...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed Lbm

Del.quentity cm3/: 173.5...175.5 1000 s: (170.5...178.5) cm3 : 7.00

Spread

1000 s: (12.0) Aneroid pressure h: 700

Aneroid pressure h: -

Speed rpm : 500 Del.quentity cm3/ : 138.0...140.0 1000 s: (135.0...143.0)

cm3 : 7.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks : MB 14,7 c 7 : 24.06.88 Test sheet Edition Replaces : 25.3.88 Test oil : ISO-4113 Combination no. : 0 401 848 781 Injection pump Pump designation : PE8P110A320LS3842 EP type number : 0 411 818 714 Governor Governor design. : R9300/950PA827-6K : 0 421 803 098 Governer no. Customer-spec. information Customer : DAIMLER-BENZ : 04442 Engine : 206.0 1st version kW Rated speed : 1900 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Over flow quantity min. 1/h: 100...120 Test nozzie holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length m

: (3.95...4.15) Rack travel in mm: 9.00...12.00 Firing order: 8-7-2-6-3-5-Phasing : 0-45-90-135-180-225-270-315 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 8 BASIC SETTING rpm: 950 1st speed Rack travel in mm: 13.60...13.70 Del.quantity cm3/: 13.4...13.6 100 s: (13.1...13.8) Spread cm3 : 0.4100 s: (0.8) rpm : 300.0 2nd speed Rack travel in mm : 8.8...9.0 Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.3) cm3 : 0.4Spread 100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 1.90...2.20 2nd speed rpm : 500 travel mm : 5.50...5.60 3rd speed rpm : 775 travel mm : 6.20...6.40 4th speed rpm : 950 : 7.30...7.70 travel non 5th speed rpm : 1020 : 9.50...10.00 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Speed Rack travel in mm : 14.70...15.70 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 950

: 4.00...4.10

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Del.quantity : 134.0...136.0 1000 : (131.5...138.5) Spread cm3 : 4.00 1000 : (8.00)

1st version

Setting point: Speed rpm : 600 Rack travel in mm : 15.2

Testing:
1st rack travel in: 12.50
Speed rpm: 995...1010
2nd rack travel in: 4.00
Speed rpm: 1055...1085
4th rack travel in: 1300
Speed rpm: 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.9

Testing:
Speed rpm : 200
Minimum rack trave: 11.50
Speed rpm : 300
Rack travel in mm : 8.80...9.00
Rack travel in mm : 3.00
Speed rpm : 480...530

Speed rpm : 600 Maximum rack trave: 1.80

TORQUE CONTROL

Dimension a mm : 0.70

Torque control curve - 1st version

1st speed rpm : 950

Rack travel in m: 13.60...13.70

2nd speed rpm : 500

Rack travel in m: 12.90...13.10

3rd speed rpm : 750

3rd speed rpm : 750 Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 500 Del.quantity cm3/: 115.0...118.0 1000 s: (112.0...121.0) Spread cm3 : 8.00 1000 s: (11.0) Speed rpm : 750

Del.quantity cm3/: 122.0...126.0 1000 s: (119.0...129.0)

Spread cm3 : 8.00 1000 s: (11.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.50 Speed rpm : 995...1010

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 14.5 b : 14.10.88 Test sheet Edition : 2.12.86 Replaces Test oil : ISO-4113 Combination no. : 0 401 848 785 Injection pump Pump designation : PE8P120A520/4LS3834 EP type number : 0 411 828 718 Governor Governor design. : RQV250...1150PA668-7 : 0 421 813 481 Governer no. Customer-spec. information Customer : MAN : D 2848 LE Engine 1st version kW : 375.0 : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Test nozzle holder : 1 688 901 019 assembly Opening: pressure, bar : 207...210 Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 4.20...4.30 : (4.15...4.35) Rack travel in mm : 9.00...12.00 : 8-7-2-6-3-5-4-1 Firing order

: 0-45-90-135-180-225-Phasing

270-315 Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 1150 1st speed

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250 2nd speed

Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6)

cm3 : 0.5 Spread

100 s: (0.9)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250 : 1.00...1.20 travel mm

2nd speed rpm : 800

travel mm : 6.30...6.50

rpm : 1150 3rd speed

: 8.40...8.60 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

Speed rpm: 1150 Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 209.0...211.0 Del.quantity 1000 : (206.0...214.0)

cm3 : 5.0 Spread

1000 : (9.0)

RATED SPEED 1st version Control lever position degrees: 61...69 Testing: 1st rack travel in: 10.80 Speed rpm : 1190...1200 2nd rack travel in: 4.00 Speed rpm : 1330...1360 4th rack travel in: 1450 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 8...16 Testing: Speed rpm : 100 Minimum rack trave: 8.20 rpm : 250 Speed Rack travel in mm : 6.60...6.80 Rack travel in mm : 2.00 Speed rpm : 400...460 START CUT-OUT Speed

1/min : 200 (220)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0)

Spread cm3 : 8.01000 s: (12.0)

Remarks:

: MAN-NR. 2-7846

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 : (3.95...4.15) Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order Test sheet : MB 14,7 c 3 Edition : 09.09.88 Replaces : 7.12.87 Test oil : ISO-4113 Phasing : 0-45-90-135-180-225-Combination no. : 0 401 848 790 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P110A320LS3842 Time to cyl. no. : 8 EP type number : 0 411 818 714 Governor BASIC SETTING Governor design. : RQ300/1050PA187-17 Governer no. : 0 421 801 410 rpm : 1050 1st speed Customer-spec. information Rack travel in mm : 11.50...11.60 Customer : DAIMLER-BENZ Del.quantity cm3/: 11.7...11.9 Engine : 0M442 100 s: (11.4...12.1) 1st version kW : 192.0 Rated speed : 2100 Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.8) Test oil rpm : 300.0 2nd speed: inlet temp. OC : 38...42 Rack travel in mm: 8.4...8.6 Del.quantity cm3/: 1.5...2.1 Overflow valve 100 s: (1.2...2.3) : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Overflow Control-lever position quantity min. 1/h: 100...120 Degree: -1 rpm : 600 Speed Test nozzle holder Rack travel in mm : 13.20...14.20 : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version rpm : 1050 Speed : 117.0...119.0 Del.quantity 1000 : (114.5...121.5) cm3 : 4.00 Test lines : 1 680 750 015 Spread Outside diameter 1000 : (8.00) x Wall thickness : 6.00x1.50x600 x Length mm RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values ____ : 600 Speed rpm Rack travel in mm: 13.7 BEGINNING OF DELIVERY

Testing:

1st rack travel in: 10.50

Test pressure, bar: 25...27

rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1145...1175 4th rack travel in: 1300 rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring rpm : 300° Rack travel in mm: 6.9

Testing:

rpm : 200 Speed Minimum rack trave: 9.00 Speed rpm : 300

Rack travel in mm : 6.80...7.00

Rack travel in nm : 2.00 rpm : 400...440 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 600 Speed

Del.quantity cm3/: 97.0...100.0 1000 s: (94.0...103.0)

cm3 : 8.00 Spread 1000 s: (11.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 8- 7- 2- 6- 3- 5-Firing order : MB 14,7 c 5 Test sheet : 05.08.88 Edition : 18.10.87 Replaces Test oil : ISO-4113 : 0-45-90-135-180-225-Phasing Combination no. : 0 401 848 794 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P110A320LS3842 Time to cyl. no. : 8 EP type number : 0 411 818 714 Governor BASIC SETTING Governor design. : RQ300/1050PA187-18 : 0 421 801 430 rpm : 750 Governer no. 1st speed Customer-spec. information Rack travel in mm : 12.70...12.80 Customer : DAIMLER-BENZ Del.quantity cm3/: 12.6...12.8 : 0M442 Engine 100 s: (12.3...13.0) 1st version kW : 213.0 Rated speed : 2100 Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.7) Test oil rpm : 300.0 2nd speed inlet temp. °C : 38...42 Rack travel in mm: 8.2...8.5 Del.quantity cm3/: 1.5...2.1 Overflow valve 100 s: (1.2...2.3) : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar : 1.50 GUIDE SLEEVE POSITION Control-lever position Overflow quantity min. 1/h: 100...120 Degree: -1 Speed rpm : 650 Test nozzle holder Rack travel in mm : 13.60...14.40 : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version rpm : 750 Speed : 126.0...128.0 Del.quantity 1000 : (123.5...130.5) Test lines : 1 680 750 015 cm3 : 4.00 Spread 1000 : (7.50) Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: rpm : 650 per values

Rack travel in mm: 14.0

1st rack travel in: 11.70

Testing:

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Speed rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1350 Speed rpm : 0.00...2.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Speed Rack travel in mm: 6.9 Testing: rpm : 200 Speed Minimum rack trave: 9.00 rpm : 300 Speed Rack travel in mm : 6.80...7.00 Rack travel in mm : 2.00 Speed rpm : 400...440 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1050 Speed Del.quantity cm3/: 136.0...140.0 1000 s: (133.0...143.0) cm3 : 7.00 Spread 1000 s: (10.0) RACK STOP ADJUSTMENT rpm : 600 Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1095...1110 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 14,7 d 6 : 01.07.88 : 11.3.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 848 795 Injection pump Pump designation : PE8P110A320LS3842 EP type number : 0 411 818 714 Governor Governor design. : RQV300..1050PA884-1 Governer no. : 0 421 813 686 Customer-spec. information : DAIMLER-BENZ Customer Engine : 04442 1st version kW : 213.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Opening. pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter

x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 8- 7- 2- 6- 3- 5-Firing order Phasing : 0-45-90-135-180-225-270-315 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 8 BASIC SETTING 1st speed rpm : 750 Rack travel in mm : 12.70...12.80 Del.quantity cm3/: 12.6...12.8 100 s: (12.3...13.0) Spread cm3 : 0.4100 s: (0.7) rpm : 300.0 2nd speed Rack travel in mm : 8.4...8.8 Del.quantity cm3/ : 1.5...2.1 100 s: (1.2...2.3)

Spread cm3 : 0.4 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 1.10...1.40 travel mm rpm : 800 2nd speed : 7.80...8.20 travel mm 3rd speed rpm : 1100 travel mm : 8.20...8.60 4th speed rpm : 1150 travel mm : 9.10...9.70

GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1085 Speed Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 750 : 126.0...128.0 1000 : (123.5...130.5) Del.quantity

Spread

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 11.70

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1150...1180 Speed 4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever position degrees: 18...26

Testing:

rpm : 200 Speed

Minimum rack trave: 10.00 rpm : 300 Speed

Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

rpm : 300...400 Speed

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

: 100 Speed Lbu

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

824

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-Note remarks Test sheet : MB 14,6 m 3 : 27.10.88 Edition Replaces Test oil : 12.2.88 : ISO-4113 : 0-45-90-135-180-225-Phasing Combination no. : 0 401 848 797 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P110A320LS3813-10 Time to cyl. no. : 8 EP type number : 0 411 818 712 Governor BASIC SETTING Governor design. : RQV350...1150PA378-8 Governer no. : 0 421 813 725 1st speed rpm : 750 Customer-spec. information Rack travel in mm : 11.70...11.80 Customer : DAIMLER-BENZ Del.quantity cm3/: 11.4...11.6 Engine : 0M422 100 s: (11.1...11.8) : 206.0 1st version kW : 2300 Rated speed Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.8) 2nd speed rpm : 350.0 Rack travel in mm : 7.4...7.7 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.4...1.8 Overflow valve 100 s: (1.1...2.0) : 1 417 413 025 Spread cm3 : 0.4100 s: (0.7) Inlet press., bar: 1.50 (B) Setting of injection pump Overflow with governor quantity min. 1/h: 100...120 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 350 : 0 681 343 009 assembly : 1.90...2.10 travel mm 2nd speed rpm : 500 : 3.20...3.50 Opening travel mm pressure, bar : 172...175 3rd speed rpm : 800 : 4.50...4.80 travel mm 4th speed rpm : 1200 Test lines : 1 680 750 015 : 8.00...8.50 travel mm 5th speed rpm : 1275 : 9.30...9.90 Outside diameter travel mm x Wall thickness : 6.00X1.50X600 x Length mm

GUIDE SLEEVE POSITION
Control-lever position
Degree: -1
Speed rpm : 1230
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 750

(A) Injection pump setting values

Set equal delivery quant.

per values ____

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Insp. values in parentheses

Del.quantity : 114.0...118.5)

cm3 : 4.00 1000 : (8.00)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.70

грт : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1250...1280 4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 14...24

Testing:

Speed rpm : 200 Minimum rack trave: 9.00

Speed rpm: 350
Rack travel in mm: 7.40...7.70

CONSTANT REGULATION

rpm : 350...700 Speed

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1150

Del.quantity cm3/: 132.0...137.0 1000 s: (129.0...140.0)

Spread cm3 : 6.00

1000 s: (9.00)

: 1150 Speed rpm

Del.quantity cm3/: 84.0...87.0 *

1000 s: (81.0...90.0) cm3 : 6.00 1000 s: (9.00)

Spread

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

rpm : 1190...1200 Speed

B26

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,5 c : 11.07.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 848 799

Injection pump

Pump designation: PE8P120A520/4L\$3847

EP type number : 0 411 828 722

Governor

Governor design. : RQ750PA663-8 Governer no. : 0 421 801 448

Customer-spec. information Customer : MAN

Engine : D 2848 LE

1st version kW : 265.0 : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

× Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30

: (4.15...4.35)

Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order

4- 1

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 700 1st speed

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 24.6...24.8

100 s: (24.3...25.1)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 6.6...6.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 246.0...248.0 Deliquantity 1000 : (243.0...251.0)

: 5.00 cm3

Spread 1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 13.40 Speed rpm : 750...755 2nd rack travel in: 4.00

Speed rpm: 782...795 4th rack travel in: 900

rem : 0.00...1.00 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Remarks:
:
APPLICATION
Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order Test sheet : MB 14,7 d 7 4- 1 Edition : 07.10.88 Replaces Test oil : ISO-4113 Phasing : 0-45-90-135-180-225-Combination no. : 0 401 848 800 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P110A320LS3842-1 Time to cyl. no. : 8 EP type number : 0 411 818 716 BASIC SETTING Governor Governor design.: RQV350..1050PA378-7 Governer no. : 0 421 813 714 1st speed rpm : 750 Customer-spec. information Rack travel in mm: 12.70...12.80 Customer : DAIMLER-BENZ Del.quantity cm3/: 12.4...12.6 Engine : 0M442 100 s: (12.1...12.8) 1st version kW : 213.0 Rated speed : 2100 Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.7) rpm : 350.0 Test oil 2nd speed Rack travel in mm : 8.0...8.3 Del.quantity cm3/: 1.5...2.1 inlet temp. °C : 38...42 Overflow valve 100 s: (1.2...2.3) : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 (B) Setting of injection pump Over flow with governor quantity min. 1/h: 100...120 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 300 : 0 681 343 009 : 1.50...1.70 assembly travel mm rpm : 800 2nd speed Opening travel mm : 4.90...5.30 pressure, bar : 172...175 3rd speed rpm : 1100 : 7.90...8.50 travel mm 4th speed rpm : 1150 Test lines : 1 680 750 015 travel mm : 8.90...9.70 Outside diameter GUIDE SLEEVE POSITION x Wall thickness Control-lever position : 6.00x1.50x600 x Length mm Degree: -1 Speed rpm : 1110 (A) Injection pump setting values Rack travel in mm : 15.20...17.80 Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version BEGINNING OF DELIVERY rpm : 750 Speed Test pressure, bar: 25...27 : 124.0...126.0 Del.quantity

1000 : (121.5...128.5)

Spread cm3 : 4.00

1000 : (7.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 11.70 rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1140...1170 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 10...18

Testing:

: 250 Speed CDM Minimum rack trave: 9.50 rpm : 350 Speed

Rack travel in mm : 8.00...8.30

CONSTANT REGULATION

rpm : 350...450 Speed

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

: 1050 Speed rpm

Del.quantity cm3/: 137.0...141.0 1000 s: (134.0...144.0) Spread cm3 : 5.00

1000 s: (8.00) Speed rpm : 1050 Del.quantity cm3/: 87.0...89.0

1000 s: (84.0...92.0)

cm3 : 6.00 Spread

1000 s: (9,00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 14,7 n Edition : 26.08.88 Replaces Test oil : ISO-4113 Combination no. : 0 401 848 801 Injection pump Pump designation : PEBP110A320LS3848 EP type number : 0 411 818 718 Governor Governor design. : RQV300...950PA884-4 Governer no. : 0 421 813 716 Customer-spec. information Customer : DAIMLER-BENZ : 0M442 Engine : 206.0 1st version kW Rated speed : 1900 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 : 1 680 750 015 Test lines Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order : 0-45-90-135-180-225-Phasing | 270-315 : 0.50 (0.75) Tolerance + - 0 Time to cyl. no. : 8 BASIC SETTING rpm : 950 1st speed Rack travel in mm : 13.50...13.60 Del.quantity cm3/: 13.3...13.5 100 s: (13.0...13.7) cm3 : 0.4Spread 100 s: (0.8) rpm : 300.0 2nd speed Rack travel in mm: 8.8...9.0 Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.3) cm3 : 0.4Spread 100 s: (0.7) (B) Setting of injection pump with governor **GUIDE SLEEVE TRAVEL** 1st speed rpm : 300 : 1.10...1.30 travel mm грт : 500 2nd speed : 3.30...3.60 travel mm 3rd speed rpm : 800 : 6.30...6.60 travel mm 4th speed rpm : 1000 : 8.30...8.70 travel mm rpm : 1075 5th speed : 9.50...10.00 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 980

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version грт : 950 Speed

Del.quentity : 133.0...135.0 1000 : (130.5...137.5) Spread cm3 : 4.00

1000 : (8,00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 12.50 rpm : 990...1000 Speed 2nd rack travel in: 4.00 Speed rpm : 1045...1075 4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 15...23

Testing:

Speed rpm : 100 Minimum rack trave: 10.50 Speed rpm : 300 Rack travel in mm : 8.80...9.00

CONSTANT REGULATION

rpm : 300...450 Speed

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAHAY

1st version 1mm rack travel less than

full load rack tr: 12.50 rpm : 990...1000 Speed

STARTING FUEL DELIVERY

: 100 Speed Lbu

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 : 10- 9- 4- 1- 8-- 6- 3- 5- 2 Firing order : MB 18,3 c : 02.09.88 Test sheet Edition Replaces : 20.6.88 : ISO-4113 Test oil Phasing : 0-45-72-117-144-189-Combination no. : 0 401 849 705 216-261-288-333 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE10P110A320LS3818 Time to cyl. no. : 10 EP type number : 0 411 819 702 Governor BASIC SETTING Governor design. : RQ300/1150PA437-2 : 0 421 801 171 Governer no. 1st speed rpm : 1150 Customer-spec. information Rack travel in mm : 11.20...11.30 Customer : DAIMLER-BENZ Del.quantity cm3/: 12.6...12.8 Engine : OM 423 100 s: (12.3...13.0) 1st version kW : 261.0 : 2300 Rated speed Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.8) 2nd speed rpm : 300.0 Rack travel in mm : 7.9...8.1 Test oil inlet temp. OC : 38...42 Del.quantity cm3/: 1.2...2.0 Overflow valve 100 s: (0.9...2.2) : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION **Overflow** Control-lever position quantity min. 1/h: 130...140 Degree: -1 Speed rpm : 600 Rack travel in mm : 13.00...14.00 Test nozzle holder : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version rpm : 1150 Speed Del.quantity : 126.0...128.0 1000 : (123.5...130.5) Test lines : 1 680 750 015 cm3 : 4.00 Spread 1000 : (8.00) Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 RATED SPEED

1st version

Setting point:

rpm : 600 Rack travel in mm: 13.5 7

Testing:

1st rack travel in: 10.20

(A) Injection pump setting values

per values ____

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant.

: 1190...1205 Speed rpm 2nd rack travel in: 4.00 Speed rpm : 1225...1255 4th rack travel in: 1350 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Speed Rack travel in mm: 8.0 Testing: Speed : 100 rpm Minimum rack trave: 9.50 Speed rpm : 300 Rack travel in mm : 7.90...8.10 Rack travel in mm : 2.00 Speed rpm : 430...470 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 11.20...11.30 2nd speed rpm : 600 Rack travel in m: 11.70...11.90 3rd speed rpm : 900 Rack travel in m: 11.60...11.80 FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 109.0...113.0 1000 s: (106.0...116.0) Spread cm3 : 6.00 1000 s: (9.00) rpm : 900 Speed rpm Del.quantity cm3/: 118.0...123.0 1000 s: (115.0...126.0) Spread cm3 : 6.00 1000 s: (9.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.20 Speed rpm : 1190...1205 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 q Edition : 16.05.88 Replaces : 13.5.87 Test oil : ISO-4113

Combination no. : 0 401 849 728

Injection pump

Pump designation : PE10P110A920/5LS3138

EP type number : 0 411 819 707

Governor

Governor design. : RQV425....900PA814 Governer no. : 0 421 813 558

Customer-spec, information : KHD Customer

: F10L513 OPT. Engine

: 188.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.10...3.20 Prestroke mm

(3.05...3.25)

Rack travel in mm : 9.00...12.00

C07

Firing order : 1- 10- 9- 4- 3- 6-

5- 8- 7- 2

: 0-27-72-99-144-171-Phasing

216-243-288-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm: 10.40...10.50

Del.quantity cm3/: 9.4...9.6

100 s: (9.1...9.9)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 425.0 Rack travel in mm : 7.3...7.5 Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0) cm3 : 0.4 100 s: (0.7) Spread

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 425

travel mm : 1.30...1.70

2nd speed rpm : 450

travel mm : 2.10...2.70

3rd speed rpm : 550

: 3.40...4.00 travel mm

4th speed rpm : 950

: 8.40...8.60 travel mm

5th speed rpm : 1000

: 9.20...9.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 950 Speed

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

: 94.0...96.0 1000 : (91.0...99.0) Del.quantity

Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.40 rpm : 940...950 Speed 2nd rack travel in: 4.00

Speed rpm : 980...1010

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 22...30

Testing:

Speed rpm : 100 Minimum rack trave: 8.80 Speed rpm : 425 Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

rpm : 435...490 Speed

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 900
Rack travel in m: 10.40...10.50
2nd speed rpm : 550
Rack travel in m: 10.70...10.80

3rd speed rpm : 675

Rack travel in m: 10.70...10.80 4th speed rpm : 750

Rack travel in m: 10.60...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

: 675 Speed rpm

Del.quantity cm3/: 96.0...100.0 1000 s: (94.0...102.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 940...950

STARTING FUEL DELIVERY

cos

Speed rpm : 100 Del.quantity cm3/ : 135.0...165.0 1000 s: (131.0...169.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION Compressor

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 18,3 e 4 : 07.10.88 Test sheet Edition Replaces : 16.6.87 Test oil : ISO-4113

Combination no. : 0 401 849 733

Injection pump

Pump designation : PE10P120A320LS3824

-10

EP type number : 0 411 829 701

Governor

Governor design. : RQ300/1150PA546-11

Governer no. : 0 421 801 384

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 423 A

1st version kW : 301.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 130...150

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm : (3.95...4.15)

Rack travel in mm : 9.00...12.00 : 10- 9- 4- 1- 8- 7-Firing order

6- 3- 5- 2

Phasing : 0-45-72-117-144-189-

216-261-288-333

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 15.2...15.4

100 s: (14.9...15.7)

Spread cm3 : 0.5

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm: 5.0...5.2 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed Aneroid pressure h: 700

Del.quantity : 152.0...154.0

1000 : (149.0...157.0)

cm3 : 5.00 Spread

1000 : (8.00)

RATED SPEED

1st version

Setting point:

C09

Speed rpm : 600 Rack travel in mm : 20.0 Testing: 1st rack travel in: 10.10 rpm : 1195...1210 Speed 2nd rack travel in: 4.00 Speed rpm : 1250...1280 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.1 Testing: Speed rpm : 100 Minimum rack trave: 6.50 Speed rpm : 300 Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00 rpm : 360...400 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 11.00...11.10 2nd speed rpm : 750 Rack travel in m: 11.60...11.80 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Pressure hPa : -Rack travel mm : 10.40...10.60 Measurement 1/min : 500 Speed 1st pressure hPa : 360 Rack travel in m: 10.50...10.60 2nd pressure hPa : 420 Rack travel in m: 10.90...11.10 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 750

Speed

C10

Del.quantity cm3/: 169.0...172.0 1000 s: (166.0...175.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) cm3 : 8.00 Spread 1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 rpm : 1195...1210 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 : 10- 9- 4- 1- 8- 7-Firing order 6- 3- 5- 2 Test sheet : MB 18,3 o : 02.09.88 Edition Replaces : 5.2.88 Test oil : ISO-4113 : 0-45-72-117-144-189-216-261-288-333 Phasing Combination no. : 0 401 849 742 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE10P110A320L\$3844 Time to cyl. no. : 10 EP type number : 0 411 819 710 Governor BASIC SETTING Governor design. : RQV300..1050PA884-2 Governer no. : 0 421 813 688 1st speed rpm : 750 Customer-spec. information Rack travel in mm : 12.50...12.60 Customer : DAIMLER-BENZ Del.quantity cm3/: 12.3...12.5 Engine : OM 443 100 s: (12.0...12.7) : 265.0 1st version kW Rated speed : 2100 Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.8) Test oil rpm : 300.0 2nd speed inlet temp. OC : 38...42 Rack travel in mm: 8.0...8.3 Del.quantity cm3/: 1.5...2.1 Overflow valve 100 s: (1.2...2.3) : 1 417 413 025 Spread cm3 : 0.4100 s: (0.7) Inlet press., bar: 1.50 (B) Setting of injection pump Overflow with governor quantity min. 1/h: 130...150 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 300 : 0: 681 343 009 assembly : 1.10...1.40 travel mm 2nd speed rpm : 650 Opening travel mm : 5.00...5.40 pressure, bar : 172...175 rpm : 1100 3rd speed : 8.20...8.60 travel mm rpm : 1160 4th speed : 1 680 750 015 Test lines : 9.20...9.80 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness Control-lever position : 6.00x1.50x600 x Length mm Degree: -1 rpm : 1080 Speed (A) Injection pump setting values Rack travel in mm : 15.20...17.80 Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version BEGINNING OF DELIVERY rpm : 750 Speed : 123.0...125.0 Test pressure, bar: 25...27 Del quantity

1000 : (120.5...127.5)

Spread cm3 : 4.00 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 49...57 Testing: 1st rack travel in: 11.50 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1145...1175 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 17...25 Testing: rpm : 200 Speed Minimum rack trave: 9.00 Speed rpm : 300 Rack travel in mm : 6.80...7.10 CONSTANT REGULATION rpm : 300...420 Speed START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1050 Del.quantity cm3/: 134.0...138.0 1000 s: (131.0...141.0) cm3 : 6.00 Spread 1000 s: (9,00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.50 Speed rpm : 1090...1100

Remarks:

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF 11,6010 Edition : 24,10,88 Replaces : 9.3.87 Test oil : ISO-4113 Combination no. : 0 401 876 293 Injection pump Pump designation : PE6P120A320RS415-1Z EP type number : 0 411 826 136 Governor Governor design. : RSV250...900P5A508 Governer no. : 0 421 833 193 Customer-spec. information Customer : DAF Engine : DKX 1160E TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values . BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2- 4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - D : 0.50 (0.75) BASIC SETTING 1st speed rpm : 600 Rack travel in mm : 11.70...11.80 Del.quantity cm3/: 17.4...17.6 100 s: (17.1...17.9) Spread cm3 : 0.5100 s: (0.9) rpm : 250.0 2nd speed Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.50 FULL LOAD DELIV. AT FULL LOAD STGP 1st version Speed rpm : 600 Aneroid pressure h: 700 Del.quantity : 1/4.0....179.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 45...53 Testing:

1st rack travel in: 10.00 Speed rpm : 935...945 2nd rack travel in: 4.00 rpm : 1010...1040 Speed

3rd rack travel in: 4.00

C13

rpm : 1020...1050 Speed 4th rack travel in: 1180

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 22...30 Setting point w/out bumper spring Speed rpm : 250

Rack travel in mm: 6.0
Speed rpm: 250
Rack travel in mm: 6.40...6.60
Rack travel in mm: 2.00

rpm : 395...455 Speed

TORQUE CONTROL

Torque control curve - 1st version 1st speed rpm : 875

Rack travel in m: 11.00...11.10

2nd speed rpm : 600

Rack travel in m: 11.90...12.00
3rd speed rpm : 725
Rack travel in m: 11.50...11.70

4th speed rpm : 775

Rack travel in m: 11.20...11.40

Aneroid/Altitude Compensator Test

1st version

Setting rpm : 600 hPa : 700 : 600 Speed ` Pressure

Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 10.40...10.60

2nd pressure hPa : 300

Rack travel in m: 11.10...11.20 3rd pressure hPa : 255

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 : 875 Speed

rpm : 600 Speed

Del.quantity cm3/: 140.0...142.0 1000 s: (137.0...145.0)

BREAKAHAY

1st version 1mm rack travel less than

full load rack tr: 10.00 Speed rpm : 935...945

STARTING FUEL DELIVERY

Speed Speed rpm : 100 Del.quantity cm3/ : 305.0...345.0

1000 s: (301.0...349.0) Rack travel in mm: 19.50...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.40...6.60

Remarks:

Rack travel in m: 10.50...10.90

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 c 1 Edition : 04.11.88 Replaces : 9.3.87 Test oil : ISO-4113

Combination no. : 0 401 876 322

Injection pump

Pump designation : PE6P110A320RS497 EP type number : 0 411 816 165

Governor

: RSV200...1200P1A374-Governor design.

: 0 421 833 205 Governer no.

Customer-spec. information : VOLVO Customer

: TJD71A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.00...3.10 Prestroke mm : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 11.6...11.8

100 s: (11.3...12.1)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 200.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/: 1.6...2.2

100 s: (-) Spread cm3 : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed Aneroid pressure h: 900

Del.quantity : 116.0...118.0 1000 : (113.0...121.0)

: 4.00 cm3 Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 54...62

Testing:

1st rack travel in: 10.70

rpm : 1240...1250 Speed

2nd rack travel in: 4.00

Speed rpm : 1290...1320

4th rack travel in: 1420

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point wout bumper spring

rpm : 200 Rack travel in mm: 4.8 rpm : 200 Speed

Rack travel in mm : 5.20...5.40

Rack travel in mm: 2.00

Speed rpm : 280...340

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : 900 Pressure

Rack travel mm : 11.70...11.80

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 800 Rack travel in m: 11.60...11.70

3rd pressure hPa : 270 Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 700 Del.quantity cm3/ : 66.0...68.0

1000 s: (63.0...71.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 200

Rack travel in mm : 5.20...5.40

C16

Del.quantity cm3/: 16.0...22.0 Spread cm3: 3.00

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : ENA 10,1 f1 Phasing : 0-60-120-180-240-300 : 07.10.88 Edition Replaces Tolerance + - 0 : 0.50 (0.75) Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 401 876 332A BASIC SETTING Injection pump Pump designation : PE6P100A820LS130 1st speed rpm: 1050 EP type number : 0 411 806 179 Governor Rack travel in mm : 11.40...11.50 Governor design. : RSV250...1000P1A532 Governer no. : 0 421 833 273 Del.quantity cm3/: 11.0...11.2 Customer-spec. information 100 s: (10.8...11.4) Customer : ENASA cm3 : 0.3Spread : 95 A1 COMR 400 Engine 100 s: (0.6) : 125.0 1st version kW : 2000 2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Rated speed Del.quantity cm3/: 1.8...2.2 TEST BENCH REQUIREMENTS 100 s: (1.5...2.4) Test oil Spread cm3 : 0.3inlet temp. °C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 417 413 025 Control-lever position Degree: -3 rpm : 800 Inlet press., bar: 1.50 Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 assembly Governor spring pre-tension Click setting x : 4.50 Opening pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 015 rpm : 1050 Speed Del.quantity : 110.0...112.0 1000 : (108.0...114.0) Outside diameter x Wall thickness : 3.50 Spread cm3 x Length mm : 6.00x1.50x600 1000 : (6.00) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever position degrees: 52...60 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 10.40 : 2.80...2.90 Prestroke mm Speed rpm : 1090...1100 : (2.75...2.95) 2nd rack travel in: 4.00

rpm : 1120...1150

Speed

Rack travel in mm : 9.00...12.00

3rd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1280 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 250° Rack travel in mm: 5.5 Testing: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm: 5.40...5.60 Rack travel in mm: 2.00 rpm : 350...410 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 11.40...11.50 2nd speed rpm : 450 Rack travel in m: 11.40...11.50 3rd speed rpm : 250 Rack travel in m: 12.70...13.30 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.40 Speed rpm : 1090...1100 STARTING FUEL DELIVERY : 100 Speed Lbw Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 200 Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : ENA 11,9 9 : 16.06.88 Phasing : 0-60-120-180-240-300 Edition : 25.3.88 Replaces Tolerance + - 0 : 0.50 (0.75) Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 401 876 333 BASIC SETTING Injection pump Pump designation : PE6P12OA32ORS257 rpm : 1050 1st speed EP type number : 0 411 826 075 Rack travel in mm : 11.20...11.30 Governor Governor design. : RSV250...1100P0A533 : 0 421 833 274 Del.quantity cm3/: 21.3...21.5 Governer no. Customer-spec. information 100 s: (21.0...21.8) Customer : ENASA Spread cm3 : 0.5Engine : 96 T1AO 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 250.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.7...2.3 Test oil inlet temp. °C : 38...42 100 s: (1.4...2.6) Overflow valve cm3 : 0.8 Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 : 1 688 901 019 assembly rpm : 800 Speed Rack travel in mm : 0.30...0.70 Opening pressure, bar : 207...210 Governor spring pre-tension Click setting x : 4.50 Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0.8 1st version Test lines : 1 680 750 067 rpm : 1050 Speed : 213.0...215.0 Del.quantity 1000 : (210.0...218.0) cm3 : 5.00 1000 : (9.00) Outside diameter x Wall thickness Spread x Length mm : 6.00x1.50x1000 RATED SPEED (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version

1st version Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.20 Speed rpm : 1140...1150

2nd rack travel in: 4.00 Speed rpm : 1180...1210

C19

per values

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 2.80...2.90

: (2.75...2.95)

BEGINNING OF DELIVERY

Prestroke mm

3rd rack travel in: 4.00 Speed rpm : 1190...1220 4th rack travel in: 1350 rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring rpm : 250

Rack travel in mm: 5.3

Testing:

Speed rpm : 100 Minimum rack trave: 19.50

Speed rpm : 250 Rack travel in mm : 5.70...5.90

Rack travel in mm: 2.00 : 350...410 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version 1st speed rpm : 1050

Rack travel in m: 11.20...11.30

2nd speed rpm : 450 Rack travel in m: 11.20...11.30 3rd speed rpm : 250

Rack travel in m: 12.40...13.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Remarks:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DAF 11.7 f : 16.06.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 876 335 Injection pump Pump designation : PE6P120A320RS415-1 EP type number : 0 411 826 123 Governor Governor design. : RSV250...1100P5A508 -8 : 0 421 833 298 Governer no. Customer-spec. information Customer Engine : DKV 1160 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + = 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 17.1...17.3

100 s: (16.8...17.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

Spread cm3 : 0.8100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650 Aneroid pressure h: 700

Del.quantity : 171.0...173.0 1000 : (168.0...176.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 45...53

Testing:

1st rack travel in: 9.10

Speed rpm : 1135...1145

2nd rack travel in: 4.00

rpm : 1175...1205 Speed

3rd rack travel in: 4.00 Speed rpm: 1210...1240 4th rack travel in: 1375

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point wout bumper spring

rpm : 250 Speed Rack travel in mm : 5.8

Testing:

rpm : 100 rpm : 250 Speed Speed

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00

rpm : 630...730 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 650

Rack travel in m: 11.40...11.50
2nd speed rpm : 1090
Rack travel in m: 10.10...10.30
3rd speed rpm : 800
Rack travel in m: 10.80...11.00

4th speed rpm : 850

Rack travel in m: 10.40...10.70

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 hPa : 700 Speed ⁻ Pressure

Rack travel mm : 11.10...11.20

Measurement

1/min : 600 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.60

2nd pressure hPa : 290

Rack travel in m: 10.70...10.90

3rd pressure hPa : 260

Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm: 1090
Del.quantity cm3/: 158.0...162.0
1000 s: (155.0...165.0)

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 129.0...131.0

1000 s: (126.0...134.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 1135...1145

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 320.0...360.0 1000 s: (316.0...364.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.20...6.40

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DAF 11.7 9 : 30.09.88 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 401 876 336 Injection pump Pump designation : PE6P120A320RS415-1 EP type number : 0 411 826 123 Governor Governor design. : RSV250...1050P5A539 Governor no. : 0 421 833 299 Customer-spec. information Customer : DAF Engine : KT 191 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening. : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 650 Rack travel in mm : 10.80...10.90 Del.quantity cm3/: 16.1...16.3 100 s: (15.8...16.6) Spread cm3 : 0.5100 s: (0.9) rpm : 250.0 2nd speed Rack travel in mm : 6.7...6.9 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.8 Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 650 Speed Aneroid pressure h: 700 : 161.0...163.0 Del.quantity 1000 : (158.0...166.0) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 46...54 Testing: 1st rack travel in: 9.20 Speed rpm : 1085...1095 2nd rack travel in: 4.00 rpm : 1125...1155 Speed 3rd rack travel in: 4.00

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 2.80...2.90

: (2.75...2.95)

Speed rpm : 1150...1180 4th rack travel in: 1320 rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 20...28 Setting point Wout bumper spring

Speed rpm : 250
Rack travel in mm : 5.8
Speed rpm : 250
Rack gravel in mm : 6.20...6.40

我的文 travel in mm : 2.00

हरकरत rpm : 630...730

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1040 Rack travel in m: 10.20...10.40

2nd speed rpm : 650 Rack travel in m: 11.10...11.20

3rd speed rpm : 805

Rack travel in m: 10.80...11.00

4th speed rpm : 850

Rack travel in m: 10.50...10.70

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 600 hPa: : 700 : 600 Speed T Pressure

Rack travel mm : 10.80...10.90

Measurement

1/min : 600 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 310 Rack travel in m: 10.40...10.50

3rd pressure hPa :?

Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 1040 Speed

Del.quantity cm3/: 160.0...164.0 1000 s: (157.0...167.0)

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 130.0...132.0 1000 s: (127,0...135,0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20

rpm : 1085...1095 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 320.0...360.0 1000 s: (316.0...364.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.20...6.40

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: SCA 11.0 r7 : 01.09.88 Test sheet Edition : 24.7.87 Replaces Test oil : ISO-4113

Combination no. : 0 401 876 734

Injection pump

Pump designation : PE6P110A720RS3040-1

EP type number : 0 411 816 738

Governor

Governor design: : RSV350...1100P1/505 Governer no. : 0 421 833 148

Customer-spec. information Customer : SCANIA

Engine : DS 11 05

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.30...3.40 Prestroke mm : (3.25...3.45)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-20-180-240-300

Tolerance + - D : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.10...13.20

Del.quantity cm3/: 15.6...15.8

100 s: (15.4...16.0)

Spread cm3 : 0.6

100 s: (0.8)

rpm : 350.0 2nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 1.8...2.2

100 s: (-) cm3 : 0.2 Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 156.0...158.0 Del.quantity 1000 : (154.0...160.0)

: 6.00 cm3 Spread 1000 : (8.00)

RATED SPEED

1st version Control lever

position degrees: 62...70

Testing:

1st rack travel in: 12.10

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1210...1240 Speed

4th rack travel in: 1370

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 27...35

Setting point w/out bumper spring Speed rpm : 350

Rack travel in mm: 4.0 Speed rpm: 350

Rack travel in mm : 4.40...4.60 Rack travel in mm: 2.00 Speed rpm : 440...500

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed rpm

Del.quantity cm3/: 156.5...161.5 1000 s: (154.0...164.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 1140...1150

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 240.0...290.0 Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.40...4.60

Del.quantity cm3/: 18.0...22.0 1000 s: (-)

cm3 : 2.00 Spread 1000 s: (4,00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. With letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on 1983-10-05 Start of delivery - engine: 20° before Firing sequence of engine: 1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11.0 q 4 Edition : 05.08.88 Replaces : 7.12.87

Test oil : ISO-4113

Combination no. : 0 401 876 740

Injection pump

Pump designation : PE6P120A320LS3815-10

EP type number : 0 411 826 735

Governor

Governor design. : RSV750...1150P1A820-

4

Governer no. : 0 421 833 179

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M421A

1st version kW : 184.0

Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15) Rack travel in mm : 9.00...12.00

Firing order : 6-3-5-2-4-1

Phasing : 0-45-120-165-240-285

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1180

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 16.3...16.5

100 s: (16.0...16.8)

Spread cm3:0.5

100 s: (0.9)

2nd speed rpm: 750.0 Rack travel in mm: 3.3...3.6 Del.quantity cm3/: 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 80

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1180

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm3 : 5.00

1000 : (9,00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 10.00

rpm : 1210...1220 Speed

2nd rack travel in: 4.00

Speed rpm : 1235...1255

4th rack travel in: 1350

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 32...40

Setting point w/out bumper spring

rpm : 750° Speed

Rack travel in mm: 3.4
Speed rpm: 750
Rack travel in mm: 3.30...3.50
Rack travel in mm: 2.00

rpm : 755...815 Speed

SET IDLE AUXILIARY SPRING

Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180 Rack travel in m: 11.00...11.10

2nd speed rpm : 975

Rack travel in m: 11.40...11.60

3rd speed rpm : 600

Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

: 950 Speed rpm

Del.quantity cm3/: 174.0...178.0

1000 s: (171.0...181.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

rpm : 1210...1220 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm =

25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Combine-harvester

: 2.40...2.50 : (2.35...2.55) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Test sheet : PEN 12,0 h Edition : 29.04.88 : 5.6.87 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 401 876 755 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PE6P120A320RS3187 EP type number : 0 411 826 757 BASIC SETTING Governor Governor design. : RSV250..1100P1A523 rpm : 700 1st speed Governer no. : 0 421 833 272 Rack travel in mm : 12.50...12.60 Customer-spec. information Customer : VOLVO-PENTA Del.quantity cm3/: 21.1...21.3 Engine : TD121G 100 s: (20.8...21.6) : 256.0 1st version kW Spread cm3 : 0.5Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 250.0 Test oil Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 2.4...2.9 inlet temp. OC : 38...42 100 s: (2.2...3.2) Overflow valve cm3 : 0.5Spread : 1 417 413 025 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 : 1 688 901 019 rpm : 800 assembly Speed Rack travel in mm: 0.30...0.70 Opening Governor spring pre-tension : 207...210 pressure, bar Click setting x : 5.00 Orifice plate : 0,8 FULL LOAD DELIV. AT FULL LOAD STOP diameter mm 1st version Test lines : 1 680 750 067 Speed rpm : 700 Aneroid pressure h: 900 Del.quantity : 211.5...213.5 1000 : (208.5...216.5) Outside diameter x Wall thickness : 5.00 : 6.00X1.50X1000 x Length mm Spread cm3 1000 : (9.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values ____ 1st version Control lever BEGINNING OF DELIVERY position degrees: 56...64 Test pressure, bar: 25...27

Testing:

1st rack travel in: 11.50 rpm : 1120...1130 Speed 2nd rack travel in: 4.00 Speed rpm : 1165...1195 4th rack travel in: 1330 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 4.3 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00 Speed rpm : 295...355 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 900 Speed Pressure Rack travel mm : 12.50...12.60 Measurement

Speed 1/min : 500

1st pressure hPa : Rack travel in m: 11.10...11.30
2nd pressure hPa : 750
Rack travel in m: 12.30...12.40

3rd pressure hPa : 550 Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 700 Del.quantity cm3/ : 175.5...177.5 1000 s: (172.5...180.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50 Speed rpm : 1120...1130

STARTING FUEL DELIVERY

002

Speed rpm : 100
Del.quantity cm3/ : 400.0...430.0
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.70...4.90
Del.quantity cm3/ : 24.5...29.5
1000 s: (22.0...32.0)
Spread cm3 : 5.00

oread cm3 : 5.00 1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 : 6- 3- 5- 2- 4- 1 Firing order : MB 11,0 k 5 Test sheet Edition : 08.06.88 Replaces : ISO-4113 Test oil : 0-45-120-165-240-285 Phasing Combination no. : 0 401 876 765 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PE6P110A320LS3814-10 EP type number : 0 411 816 741 BASIC SETTING Governor Governor design. : RSV350...1150P0A827 rpm : 1130 1st speed : 0 421 833 297 Governer no. Rack travel in mm : 12.10...12.20 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 13.5...13.7 Engine : 0M421 100 s: (13.2...13.9) : 159.0 cm3 : 0.41st version kW Spread Rated speed : 2300 100 s: (0.8) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 7.7...7.9 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.2) Overflow valve cm3 : 0.4Spread 100 s: (0.7) : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Overflow Degree: -3 quantity min. 1/h: 100...120 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP assembly Opening 1st version pressure, bar : 172...175 Speed rpm : 1130 : 135.0...137.0 Del.quantity 1000 : (132.5...139.5) cm3 : 4.00 1000 : (8.00) Test lines : 1 680 750 015 Spread Outside diameter x Wall thickness RATED SPEED : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Control lever Insp. values in parentheses position degrees: 47...53 Set equal delivery quant. per values ____ Testing: 1st rack travel in: 11.10 BEGINNING OF DELIVERY Speed rpm : 1165...1175 Test pressure, bar: 25...27 2nd rack travel in: 4.00

Speed

rpm : 1230...1260

4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.8
Speed rpm : 350
Rack travel in mm : 7.70...7.90
Rack travel in mm : 2.00
Speed rpm : 430...490

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Remarks:

: LIEBHERR

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11.0 e11 Edition : 05.08.88

Replaces : Test oil : ISO-4113

Combination no. : 0 401 876 766

Injection pump

Pump designation : PE6P120A320LS3810-10

EP type number : 0 411 826 734

Governor

Governor design. : RSV350...1150P0A827-

1

Governer no. : 0 421 833 301

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M421A

1st version kW : 184.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1130

Rack travel in mm : 10.70...10.80

Dol supptitu au7/ . 15 9 16 0

Del.quantity cm3/: 15.8...16.0

100 s: (15.5...16.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 4.9...5.1

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3:0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1130

Del.quantity : 158.0...160.0

1000 : (155.0...163.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

005

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.70

Speed rpm : 1175,..1185 2nd rack travel in: 4.00

Speed rpm : 1250...1270

4th rack travel in: 1350 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 26...34 Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.0

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 350

Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00

Speed rpm : 400...460

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

Speed rpm : 1175...1185

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 150.0...170.0

1000 s: (146.0...174.0)

Remarks:

: LIEBHERR

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 p 1 : 05.08.88 Edition Replaces : 11.12.87 Test oil : ISO-4113

Combination no. : 0 401 878 703

Injection pump

Pump designation : PE8P120A320LS3816-10

EP type number : 0 411 828 715

Governor

Governor design. : RSV650...1150P0A823

Governer no. : 0 421 833 166

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M422A

1st version kW : 206.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzie holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter nm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 9.00,..12.00 : 8- 7- 2- 6- 3- 5-

Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1180

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 13.3...13.5

100 s: (13.0...13.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 650.0 2nd speed

Rack travel in mm: 3.4...3.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

: 133.0...135.0 Del.quantity

1000 : (130.0...138.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 8.00

Speed rpm : 1210...1220

2nd rack travel in: 4.00

Speed rpm : 1235...1255

4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 650 Rack travel in mm : 3.6

Speed rpm : 650 Rack travel in mm : 3.50...3.70

Rack travel in mm : 2.00

Speed rpm : 655...695

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180

Rack travel in m: 9.00...9.10

2nd speed rpm : 975

Rack travel in m: 9.80...10.00

3rd speed rpm : 1075

Rack travel in m: 9.30...9.50

4th speed rpm : 700

Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 950

Del.quantity cm3/: 145.0...149.0

1000 s: (142.0...152.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00

Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100

D08

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min. Test specifications for version 1 apply to injection-pump assemblies on engines

as of engine no. 422.901-410117069.

APPLICATION Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order 4- 1 Test sheet : MB 14,6 t 1 : 16.06.88 Edition Replaces : 12.9.86 Test oil : ISO-4113 : 0-45-90-135-180-225-Phasing Combination no. : 0 401 878 706 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P110A320LS3813-10 Time to cyl. no. : 8 EP type number : 0 411 818 712 BASIC SETTING Governor Governor design. : RSV350...750P0A824-2 Governer no. : 0 421 833 228 rpm: 700 1st speed Customer-spec. information Rack travel in mm : 13.10...13.20 Customer : DAIMLER-BENZ Del.quantity cm3/: 14.2...14.4 : 0M422 Engine 100 s: (13.9...14.6) 1st version kW : 173.0 Rated speed : 1500 Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.8) 2nd speed rpm : 350.0 Rack travel in mm : 7.2...7.5 Test oil inlet temp. OC : 38...42 Del.quantity cm3/: 1.4...1.8 Overflow valve 100 s: (1.1...2.0) : 1 417 413 025 Spread cm3 : 0.4100 s: (0.7) Inlet press., bar : 1.50 GUIDE SLEEVE POSITION Overflow Control-lever position quantity min. 1/h: 100...120 Degree: -3 rpm : 800 Speed Test nozzle holder Rack travel in mm: 0.30...1.40 assembly : 0 681 343 009 Governor spring pre-tension Click setting x :? Opening pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 015 1st version rpm : 700 Speed Outside diameter : 142.0...144.0 Del.quantity x Wall thickness 1000 : (139.5...146.5) : 6.00x1.50x600 x Length mm cm3 : 4.00 Spread 1000 : (8.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Testing:

Control lever

position degrees: 26...34

1st rack travel in: 12.10 Speed rpm: 750...755 2nd rack travel in: 4.00 Speed rpm : 780...793 4th rack travel in: 1200 Speed rpm : 0.30...1.40 LOW IDLE 1

Control lever

position degrees: 12...20 Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.35

Testing:

rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm : 350 Rack travel in mm : 7.20...7.50

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70 rpm : 1175...1185 Speed

STARTING FUEL DELIVERY

Remarks:

Observe VDT-I-420/120

0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 p 5 : 01.07.88 Edition Replaces : 19.5.88

Test oil : ISO-4113

Combination no. : 0 401 878 711

Injection pump

Pump designation : PE8P120A320LS3816-10

EP type number : 0 411 828 715

Governor

: RSV650...1150P0A823-Governor design.

: 0 421 833 280 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M422A

1st version kW : 206.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : S

BASIC SETTING

rpm: 1180 1st speed

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 13.3...13.5

100 s: (13.0...13.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 650.0 2nd speed Rack travel in mm: 3.3...3.6

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

: 133.0...135.0 Del.quantity

1000 : (130.0...138.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 8.30

rpm : 1210...1220 Speed

2nd rack travel in: 4.00

rpm : 1235...1255 Speed

4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 650 Rack travel in mm : 3.4

rpm : 650 Speed

Rack travel in mm : 3.30...3.60

Rack travel in mm : 2.00

Speed rpm : 655...695

SET IDLE AUXILIARY SPRING

Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180

Rack travel in m: 9.30...9.40

2nd speed rpm : 950

Rack travel in m: 10.80...11.10

3rd speed rpm : 1050

Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 950 rpm

Del.quantity cm3/: 160.0...164.0

1000 s: (157.0...167.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,30

Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

Speed rom : 650

D12

Rack travel in mm : 3.30...3.60 Del.quantity cm3/: 16.0...22.0

1000 s: (13.0...25.0)

cm3 : 8.00Spread

1000 s: (12,00)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm =

25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 18,3 j : 07.10.88 Test sheet Edition : 12.9.86 Replaces Test oil : ISO-4113

Combination no. : 0 401 879 701

Injection pump

Pump designation : PE10P120A320LS3831 EP type number : 0 411 829 705

Governor

Governor design. : RSV350...750P0A824-8 Governer no. : 0 421 833 234

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : OM 423 A

1st version kW : 249.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 : (3.95...4.15) Prestroke mm

Rack travel in mm : 9.00...12.00

: 10- 9- 4- 1- 8-- 6- 3- 5- 2 firing order 8- 7

: 0-45-72-117-144-189-Phasing

216-261-288-333 : 0.50 (0.75) Tolerance + - 0

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 17.3...17.5

100 s: (17.0...17.8)

cm3 : 0.5 Spread

100 s: (0.8)

rpm : 350.0 2nd speed Rack travel in mm: 4.8...5.0

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Governor spring pre-tension Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 173.0...175.0 Del.quantity

1000 : (170.0...178.0)

: 5.00 cm3 Spread

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 26...34

Testing:

1st rack travel in: 10.30

Speed rpm: 750...755
2nd rack travel in: 4.00
Speed rpm: 775...788
4th rack travel in: 900

Speed rpm : 0.30...1.50

LOW IDLE 1 Control lever

position degrees: 12...20
Setting point w/out bumper spring
Speed rpm: 350
Rack travel in mm: 4.9
Speed rpm: 350
Rack travel in mm: 4.80...5.00

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Remarks:

Observe VDT-I-420/120 **APPLICATION** Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1- 3- 5- 4- 2 Test sheet : MAN 10.0 a : 05.08.88 Edition Replaces : 7.1.88 Test oil : ISO-4113 Phasing : 0-72-144-216-288 Combination no. : 0 402 035 020 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PESSP120A720/3LS512 EP type number : 0 412 025 021 BASIC SETTING Governor Governor design. : RQ300/1100PA813-1 1st speed rpm : 750 Governer no. : 0 421 801 405 Rack travel in mm : 10.70...10.80 Customer-spec. information Customer : MAN Del.quantity cm3/: 20.9...21.1 Engine : D2865LF 100 s: (20.6...21.4) : 191.0 1st version kW Spread cm3 : 0.5Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Test oil Rack travel in mm: 3.9...4.1 inlet temp. °C : 38...42 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1) cm3 : 0.8 Overflow valve Spread 100 s: (1.2) : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 assembly : 1 688 901 019 Speed rpm : 600 Rack travel in mm : 19.20...20.80 Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version diameter mm : 0,8 rpm : 750 Speed Aneroid pressure h: 1000 Del.quantity Test lines : 1 680 750 067 cm3 : 5.00 Spread Outside diameter

209.0...211.0 1000 : (206.0...214.0)

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.10

Test pressure, bar: 30...32 D15

x Wall thickness

x Length mm

per values

BEGINNING OF DELIVERY

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

: 6.00x1.50x1000

Speed rpm : 1145...1160 2nd rack travel in: 4.00

rpm : 1180...1210 Speed

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 4.0

Testing:

Speed rpm : 100 Minimum rack trave: 5.50 Speed rpm: 300 Rack travel in mm: 3.90...4.10 Rack travel in mm: 2.00

rpm : 320...380 Speed

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.20...10.30

2nd speed rpm : 750

Rack travel in m: 11.00...11.20

3rd speed rpm : 920

Rack travel in m: 10.60...10.80

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm Pressure hPa : 1000

: 10.70...10.80 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 7.90...8.10

2nd pressure hPa : 125

Rack travel in m: 8.30...8.40

3rd pressure hPa : 430

Rack travel in m: 9.80...10.10

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 1100 Del.quantity cm3/: 198.0...202.0 1000 s: (195.0...205.0)

Aneroid pressure h: 1000 Speed rpm : 650

Del.quantity cm3/: 200.0...206.0 1000 s: (197.0...209.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 125.0...127.0 1000 s: (122.0...130.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 3.90...4.10 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0)

Spread cm3 : 8.00

1000 s: (12,00)

Remarks:

: MAN-NR. 2-7881

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-3-5-4-2 Test sheet : MAN 10.0 b Edition : 05.08.88 Replaces : 7.1.88 Test oil : ISO-4113 Phasing : 0-72-144-216-288 Combination no. : 0 402 035 021 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PESSP120A720/3LS512 EP type number : 0 412 025 021 BASIC SETTING Governor Governor design. : RQV300...1100PA876 rpm : 750 1st speed Governer no. : 0 421 813 661 Rack travel in mm : 10.70...10.80 Customer-spec. information Customer : MAN Del.quantity cm3/: 20.9...21.1 Engine : D2865LF 100 s: (20.6...21.4) 1st version kW : 191.0 Spread cm3 : 0.5 : 2200 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Test oil Rack travel in mm: 3.9...4.1 inlet temp. OC : 38...42 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1) Overflow valve cm3 : 0.8Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 1.70...2.00 Opening : 207...210 2nd speed rpm : 850 pressure, bar travel mm : 6.00...6.20 Orifice plate 3rd speed rpm : 1100 travel mm : 8.10. diameter mm : 0.8 : 8.10...8.30 GUIDE SLEEVE POSITION Test lines : 1 680 750 067 Control-lever position Degree: -1 rpm : 1130 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses

1st version Speed rpm : 750 Aneroid pressure h: 1000

Del.quantity : 209.0...214.0)
1000 : (206.0...214.0)
Soread cm3 : 5.00 1000 : (9.00)

Set equal delivery quant.

per values ____

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

RATED SPEED

1st version Control lever

position degrees: 49...57

Testing:

1st rack travel in: 9.20

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1215...1245 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 14...22

Testing:

Speed : 100 rpm Minimum rack trave: 5.50 rpm : 300

Rack travel in mm : 3.90...4.10

CONSTANT REGULATION

Speed rpm : 310...410

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 10.70...10.80

rpm : 1100 2nd speed

Rack travel in m: 10.20...10.30

3rd speed rpm : 900

Rack travel in m: 10.60...10.70

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm Pressure hPa : 1000

: 10.70...10.80 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 7.90...8.10

2nd pressure hPa : 125

Rack travel in m: 8.30...8.40

3rd pressure hPa : 430

Rack travel in m: 9.80...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 1100 Speed

Del.quantity cm3/: 199.0...201.0 1000 s: (196.0...204.0)

Aneroid pressure h: 1000 : 650 Speed rpm

Del.quantity cm3/: 200.0...206.0 1000 s: (197.0...209.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 125.0...127.0 1000 s: (122.0...130.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 190.0...210.0

1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 3.90...4.10 Del.quantity cm3/: 12.0...18.0

1000 s: (9.0...21.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7882

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 11,9a10 : 30.09.88 Edition : 10.85 Replaces Test oil : ISO-4113 Combination no. : 0 402 036 046 Injection pump Pump designation: PES6P120A720/3LS470-EP type number : 0 412 026 051 Governor Governor design. : RQ300...1100PA679-1 Governer no. : 0 421 801 333 Customer-spec. information Customer : D2866LUL Engine 1st version kW : 243.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

Phasing 1st speed Spread 2nd speed Spread Speed 1st version Speed Spread RATED SPEED 1st version Speed Testing:

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING rpm : 750 Rack travel in mm : 11.20...11.30 Del.quantity cm3/: 20.0...20.2 100 s: (19.7...20.5) cm3 : 0.5100 s: (0.9) rpm : 300.0 Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1) cm3 : 0.8100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 750 Aneroid pressure h: 1000 200.0...202.0 1000 : (197.0...205.0) Del.quantity cm3 : 5.00 1000 : (9.00) Setting point: rpm : 600 Rack travel in mm: 20.0

D19

1st rack travel in: 10.20 Speed rpm : 1145...1160 2nd rack travel in: 4.00

Speed rpm : 1195...1225

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 4.8

Testing:

rpm : 100 Speed Minimum rack trave: 6.30 rpm : 300 Speed

Rack travel in mm : 4.70...4.90

Rack travel in mm : 2.00

rpm : 345...385

TORQUE CONTROL

Dimension a mm :-

Torque control curve - 1st version

1st speed rpm : 750 Rack travel in m: 11.60...11.70

2nd speed rpm : 1100

Rack travel in m: 11.50...11.70

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 1000 Speed Pressure

Rack travel mm : 11.20...11.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.60...8.80

2nd pressure hPa : 210

Rack travel in m: 9.00...9.10

3rd pressure hPa : 480

Rack travel in m: 10.40...10.70

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

rpm : 1100 Speed

Del.quantity cm3/: 210.0...214.0

1000 s: (207.0...217.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 12.0...18.0

1000 s: (9.0...21.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7587

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 11.9 a9 : 05.08.88 Test sheet Edition Replaces : 18.8.87 Test oil : ISO-4113 Combination no. : 0 402 036 047 Injection pump Pump designation : PES6P120A720/3LS470-EP type number : 0 412 026 051 Governor Governor design. : RQ250/1100PA679 Governer no. : 0 421 801 228 Customer-spec. information Customer : MAN : D2866KUL Engine : 265.0 ist version kW : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0.8 Test lines : 1 680 750 067 Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 22.7...22.9

100 s: (22.4...23.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 5.6...5.8

Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750 Aneroid pressure h: 1000

Del.quantity : 227.0...232.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 11.30 Speed rpm : 1145...1160 2nd rack travel in: 4.00 Speed rpm : 1185...1215 4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 250° Rack travel in mm: 5.7 Testing: rpm : 100 Speed Minimum rack trave: 7.20 Speed rpm: 250
Rack travel in mm: 5.60...5.80
Rack travel in mm: 2.00
Speed rpm: 330...370 TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 13.40...13.50 2nd speed rpm : 1100 Rack travel in m: 12.30...12.40 3rd speed rpm : 965 Rack travel in m: 13.00...13.20 4th speed rpm : 1010
Rack travel in m: 12.70...13.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 CDM hPa : 1000 Pressure Rack travel mm : 12.60...12.70 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 8.70...8.90 2nd pressure hPa : 250 Rack travel in m: 9.00...9.10 3rd pressure hPa : 700 Rack travel in m: 11.20...11.60 START CUT-OUT 1/min: 190 (210) Speed FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.30 Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0 1000 s: (205.0...225.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7717

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MAN 11,9a11 : 05.08.88 Test sheet Edition Replaces : 11.3.88

Test oil : ISO-4113

Combination no. : 0 402 036 048

Injection pump

Pump designation : PES6P120A720/3LS470-

EP type number : 0 412 026 051

Governor

Governor design. : RQV250...1100PA707

Governer no. : 0 421 813 440

Customer-spec. information Customer

Engine : D2866KUL

1st version kW : 265.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - D : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm : 750 1st speed

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 22.7...22.9

100 s: (22.4...23.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm : 5.4...5.6 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

travel mm : 1.10...1.30 rpm : 450 2nd speed

: 3.00...3.40 travel mm

rpm : 850 3rd speed travel mm

: 5.10...5.50

rpm : 1100 4th speed

travel mm : 7.20...7.40

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1130 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750 Aneroid pressure h: 1000 Del.quantity : 227.0...232.0)

: 5.00 Spread Cm3 1000 : (9,00)

RATED SPEED

1st version Control lever

position degrees: 49...57

Testing:

1st rack travel in: 11.30

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1235...1265 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 15...23

Testing:

Speed rpm : 100 Minimum rack trave: 7.00 Speed Lbw

Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

rpm : 285...400 Speed

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.30...12.40 2nd speed rpm : 750

Rack travel in m: 12.60...12.70

3rd speed rpm : 1010

Rack travel in m: 12.40...12.50

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 hPa : 1000 Speed rpm Pressure

Rack travel mm : 12.60...12.70

Heasurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.70...8.90

2nd pressure hPa : 250

Rack travel in m: 9.00...9.10
3rd pressure hPa : 700

Rack travel in m: 11.20...11.60

START CUT-OUT

1/min: 170 (190) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

: 1100 Speed rpm

Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0)

Aneroid pressure h: 1000

Speed rpm : 650

Del.quantity cm3/: 228.0...234.0

1000 s: (225.0...237.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 118.0...120.0

1000 s: (115.0...123.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 5.40...5.60

Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0)

cm3 : 8.00 Spread

1000 s: (12,00)

Remarks:

:

Note remarks

Test sheet : MAN 11,9a36 Edition : 19.08.88

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 036 048

Injection pump

Pump designation : PES6P120A720/3LS470-

3

EP type number : 0 412 026 051

Governor

Governor design. : RQV300...1100PA707

Governer no. : 0 421 813 440

Customer-spec. information Customer : MAN

Engine : D2866KUL

1st version kW : 265.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm: 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 22.7...22.9

100 s: (22.4...23.2)

Spread cm3:0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.0...5.2

Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1)

Spread cm3: 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.70...1.90

2nd speed rpm : 450

travel mm : 3.00...3.40

3rd speed rpm : 850

travel mm : 5.60...6.00

4th speed rpm : 1100

travel mm : 7,70,,,7,90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 750 Aneroid pressure h: 1000 Del.quantity : 227.0...229.0

1000 : (224.0...232.3)

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 49...57

Testing:

1st rack travel in: 11.30

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1235...1265

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 15...23

Testing:

Speed : 100 rpm Minimum rack trave: 6.60 Speed rpm : 300

Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

rpm : 290...400 Speed

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.30...12.40

2nd speed rpm : 750

Rack travel in m: 12.60...12.70

3rd speed rpm : 1010 Rack travel in m: 12.40...12.50

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed LDW Pressure hPa : 1000

: 12.60...12.70 Rack travel mm

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.70...8.90

2nd pressure hPa : 250

Rack travel in m: 9.00...9.10

3rd pressure hPa : 700

Rack travel in m: 11.20...11.60

START CUT-OUT

1/min: 170 (190) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 1100 Speed

Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0)

Aneroid pressure h: 1000

Speed rpm : 650

Del.quantity cm3/: 228.0...234.0 1000 s: (225.0...237.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 118.0...120.0

1000 s: (115.0...123.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 205.0...225.0 1000 s: (205.0...225.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7718

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 11,9a25 Test sheet Edition : 12.08.88 : 22.5.87 Replaces Test oil : ISO-4113 Combination no. : 0 402 036 050 Injection pump Pump designation : PES6P120A720/3LS470-EP type number : 0 412 026 050 Governor Governor design. : RQ300...1100PA684-3 : 0 421 801 356 Governer no. Customer-spec, information Customer Engine : D2866KF/KH 1st version kW : 265.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. OC Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ___

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 22.8...23.0

100 s: (22.5...23.3)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1) cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed Aneroid pressure h: 1000

Del.quantity : 228.0...230.0 1000 : (225.0...233.0)

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.20 Aneroid pressure h: 1000 rpm : 1100 Speed rpm : 1145...1160 Speed Del.quantity cm3/: 210.0...214.0 1000 s: (207.0...217.0) 2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1300 Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/ : 228.0...234.0 1000 s: (225.0...237.0) rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring Aneroid pressure h: 400 rpm : 300° Speed rpm : 500 Rack travel in mm: 4.8 Del.quantity cm3/: 188.0...200.0 1000 s: (185.0...203.0) Testing: Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 139.0...141.0 rpm : 100 Speed Minimum rack trave: 6.30 rpm : 300 Speed 1000 s: (136.0...144.0) Rack travel in mm : 4.70...4.90 Rack travel in mm: 2.00 Speed rpm : 345...405 BREAKAWAY TORQUE CONTROL 1st version Dimension a mm : 0.55 1mm rack travel less than Torque control curve - 1st version 1st speed rpm : 750 full load rack tr: 10.20 Rack travel in m: 12.50...12.70 rpm : 1145...1160 Speed 2nd speed rpm : 1100 Rack travel in m: 11.20...11.30 STARTING FUEL DELIVERY 3rd speed rpm : 935 Rack travel in m: 12.00...12.30 4th speed rpm : 990 Speed rpm : 100 Del.quantity cm3/: 225.0...245.0 1000 s: (221.0...249.0) Rack travel in m: 11.60...11.90 Aneroid/Altitude Compensator Test LOW IDLE Speed rpm : 300 1st version Rack travel in mm: 4.70...4.90 Del.quantity cm3/: 12.0...18.0 Setting Speed : 500 1000 s: (9.0...21.0) rom Pressure hPa : 1000 Spread cm3 : 8.00Rack travel mm : 12.20...12.30 1000 s: (12.00) Measurement Remarks: Speed 1/min : 500 : MAN-NR. 2-7598 1st pressure hPa : -Rack travel in m: 9.30...9.50 2nd pressure hPa : 120 Rack travel in m: 9.60...9.70 3rd pressure hPa : 400 Rack travel in m: 11.00...11.40 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

D28

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 11,9a12 : 23.09.88 Edition : 10.85 Replaces : ISO-4113 Test oil Phasing Combination no. : 0 402 036 053 Injection pump Pump designation : PES6P120A720/3LS470-EP type number : 0 412 026 051 Governor Governor design. : RQV300...1100PA707-1 : 0 421 813 516 Governer no. Customer-spec. information Customer : MAN : D2866LUL Engine : 243.0 1st version kW Spread : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve Spread : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm (A) Injection pump setting values Speed Insp. values in parentheses

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING rpm : 750 1st speed Rack travel in mm : 11.20...11.30 Del.quantity cm3/ : 20.0...20.2 100 s: (19.7...20.5) cm3 : 0.5100 s: (0.9) rpm : 300.0 2nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1) cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 300 1st speed travel mm : 1.70...2.00 rpm : 450 2nd speed : 2.90...3.50 travel mm rpm : 850 3rd speed travel mm : 5.60...6.00 4th speed rpm : 1100 : 8.70...8.90 travel mm rpm : 1450 5th speed travel mm : 11.00...12.00 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1140 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

E01

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Aneroid pressure h: 1000

Del.quantity : 200.0...202.0

1000 : (197.0...205.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.20

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1225...1255 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 14...22

Testing:

Speed rpm Minimum rack trave: 6.30 rpm : 300 Speed

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

rpm : 300...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm : 500 hPa : 1000 Pressure

Rack travel mm : 11.20...11.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.60...8.80

2nd pressure hPa : 210

Rack travel in m: 9.00...9.10

3rd pressure hPa : 480

Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 1100 Del.quantity cm3/ : 210.0...214.0 1000 s: (207.0...217.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 122.0...124.0

1000 s: (119.0...127.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190.0...210.0

1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MAN-NR, 2-7738

Note remarks

Test sheet : MAN 11,9a19 : 07.12.87 Edition Replaces : 12.9.86

Test oil : ISO-4113

Combination no. : 0 402 036 058

Injection pump

Pump designation : PES6P120A720/3LS470-

: 0 412 026 050 EP type number

Governor

Governor design. : RQ300/1100PA684-1 Governer no. : 0 421 801 344

Customer-spec. information Customer

: D2866LF Engine

: 243.0 : 2200 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm Rack travel in mm : 9.00...12.00

: 2.80...2.90

: (2.75...2.95)

Firing order

: 6- 2- 4- 1- 5- 3

Phasing

: 0-60-120-180-240-300

Tolerance + - 0 : 0.50(0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 20.2...20.4

100 s: (19.9...20.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300 2nd speed

Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1) cm3 : 9.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Aneroid pressure h: 1000

Del.quantity : 202.0...204.0 1000 : (199.0...207.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.50

E03

rpm : 1145...1160 Speed 2nd rack travel in: 4.00 Speed rpm : 1185...1215 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 4.8 Testing: Speed rpm : 100 Minimum rack trave: 6.30 rpm : 300 Speed Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00 Speed rpm : 340...380 TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 11.90...12.20 2nd speed rpm : 1100 Rack travel in m: 10.60...10.80 3rd speed rpm : 875 Rack travel in m: 11.80...12.00 : 950 4th speed rpm Rack travel in m: 11.20...11.50 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 1000 Speed CDM Pressure Rack travel mm : 11.10...11.20 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 8.90...9.10 2nd pressure hPa : 85 Rack travel in m: 9.30...9.40
3rd pressure hPa : 280 Rack travel in m: 10.50...10.90 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.50 Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 225.0...245.0 1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7756

E04

Aneroid pressure h: 1000

Note remarks

Test sheet : MAN 11,9a24 Edition : 05.08.88 Replaces : 11.3.88 Test oil : ISO-4113

Combination no. : 0 402 036 062

Injection pump

Pump designation : PES6P120A720/3LS470-

EP type number : 0 412 026 050

Governor

Governor design. : RQ300/1100PA813 Governer no. : 0 421 801 358

Customer-spec. information Customer

: D2866LF Engine

: 243.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3

Firino order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm : 750 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 20.2...20.4

100 s: (19.9...20.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 4.7...4.9

Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: 45

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Aneroid pressure h: 1000

Del.quantity : 202.0...204.0 1000 : (199.0...207.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point: Speed rpm : 600

Rack travel in mm: 20.0

Testing:

E05

1st rack travel in: 9.50 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 4.8 Testing: Speed rpm : 100 Minimum rack trave: 6.30 rpm : 300 Speed Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00 rpm : 340...380 Speed TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 10.70.. 10.80 2nd speed rpm : 750 Rack travel in m: 11.90...12.20 3rd speed rpm : 900 Rack travel in m: 11.70...11.90 4th speed rpm : 975 Rack travel in m: 11.00...11.30 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 1000 Pressure Rack travel mm : 11.10...11.20 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 8.90...9.10 2nd pressure hPa : 85 Rack travel in m: 9.30...9.40 3rd pressure hPa : 280 Rack travel in m: 10.50...10.80 START CUT-OUT 1/min : 190 (210) Speed FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.50 Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 225.0...245.0 1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7823

1st version

E06

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 11,9a29 Edition : 21.10.88 Replaces : 6.11.87 Test oil : ISO-4113 Combination no. : 0 402 036 070 Injection pump Pump designation : PES6P120A720/3LS470-EP type number : 0 412 026 051 Governor Governor design. : RQV300...1100PA707-2 Governer no. : 0 421 813 638 Customer-spec. information Customer : MAN : D2866LUL/290 Engine 1st version kW : 213.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wali thickness : 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm : 750 1st speed

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.8)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.2...1.8 100 s: (0.9...2.1)

cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

Spread

rpm : 300 1st speed

: 1.60...1.80 travel mm

2nd speed rpm : 475 travel mm

: 3.10...3.50 rpm : 850 3rd speed

travel mm : 5.50...5.90 rpm : 1100 4th speed

: 7.40...7.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1175 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750 Aneroid pressure h: 1000 Del.quantity : 183.0...185.0 1000 : (180.0...188.0) : 5.00 Cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 9.60 Speed rpm : 1140...1150 2nd rack travel in: 4.00 Speed rpm : 1225...1255 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 15...23 Testing: : 100 Speed rpm Minimum rack trave: 7.00 rpm : 300 Rack travel in mm : 5.40...5.60

CONSTANT REGULATION rpm : 310...410 Speed

Aneroid/Altitude Compensator Test

1st version

Setting : 500 Speed rom hPa : 1000 Pressure : 10.60...10.70 Rack travel mm

Measurement 1/min : 500 Speed

1st pressure hPa : -Rack travel in m: 8.80...8.90 2nd pressure hPa : 210 Rack travel in m: 9.10...9.20 3rd pressure hPa : 375 Rack travel in m: 9.90...10.20

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

E08

Aneroid pressure h: 1000 Speed : 1100 rpm

Del.quantity cm3/: 192.0...198.0 1000 s: (189.0...201.0)

Aneroid pressure h: 1000

Speed rpm : 650 Del.quantity cm3/ : 172.0...178.0 1000 s: (169.0...181.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 119.0...121.0 1000 s: (116.0...124.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.60

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 225.0...245.0 1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.40...5.60 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7879

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 11,9 98 Test sheet : 05.08.88 Edition : 22.1.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 036 072 Injection pump Pump designation : PES6P110A720/3LS477-EP type number : 0 412 016 071 Governor Governor design. : R0250/1100PA845-1 Governer no. : 0 421 801 423 Customer-spec. information Customer : D2566 UH/205 Engine 1st version kW : 150.0 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _ BEGINNING OF DELIVERY

Firing order : 6-2-4-1-5-3 Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 800 Rack travel in mm: 10.30...10.40 Del.quantity cm3/: 9.1...9.4 100 s: (8.8...9.6) Spread cm3 : 0.4100 s: (0.7) rpm : 250.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 1.5...2.0 100 s: (1.2...2.2) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 800 Speed : 91.0...94.0 Del.quantity 1000 : (88.5...96.5) cm3 : 4.00 Spread 1000 : (7.50) RATED SPEED 1st version Setting point: rpm Rack travel in mm : 20.0 Testing: 1st rack travel in: 9.30 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1205...1235 Speed

4th rack travel in: 1350

E09

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.50...3.60

: (3.45...3.65)

Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Speed Rack travel in mm: 6.0 Testing: Speed rpm : 100 Minimum rack trave: 7.50 Speed rpm: 250
Rack travel in mm: 5.90...6.10 Rack travel in mm : 2.00 rpm : 315...355 Speed TORQUE CONTROL Dimension a mm :-Torque control curve - 1st version 1st speed rpm : 800 Rack travel in m: 10.80...10.90 2nd speed rpm : 1100 Rack travel in m: 10.70...10.90 START CUT-OUT Speed 1/min : 170 (190) FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1100 Del.quantity cm3/ : 103.0...107.0 1000 s: (100.0...110.0) rpm : 500 Speed Del.quantity cm3/: 81.0...85.0 1000 s: (78.0...88.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.30 rpm : 1145...1160 Speed STARTING FUEL DELIVERY

rpm : 250

Rack travel in mm : 5.90...6.10 Del.quantity cm3/ : 15.0...20.0 1000 s: (12.5...22.5) Spread cm3 : 4.50 1000 s: (7.50)

Remarks:

: MAN-NR. 2-7902

APPLICATION Omnibus

LOW IDLE

Speed

Note remarks

Test sheet : MAN 11,9a31 : 30.09.88 Edition Replaces : 18.12.87 Test oil : ISO-4113

Combination no. : 0 402 036 073

Injection pump

Pump designation : PES6P120A720/3LS470-

EP type number : 0 412 026 050

Governor

Governor design. : RQ300/1100PA813-4

Governer no. : 0 421 801 425

Customer-spec. information Customer : MAN

: D2866KUH Engine

: 265.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ$: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 23.8...24.0

100 s: (23.5...24.3)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1) cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 750 Speed

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750 Aneroid pressure h: 1000

Del.quantity : 238.0...240.0

1000 : (235.0...243.0)

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 750 Speed Rack travel in mm: 15.5

Testing:

1st rack travel in: 10.50 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.0 Testing: rpm : 100 Speed Minimum rack trave: 6.50 Speed rpm : 300 Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 rpm : 400...440 Speed TORQUE CONTROL Dimension a mm : 0.35 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.50...11.60 2nd speed rpm : 750 Rack travel in m: 12.60...12.80 3rd speed rpm : 880 Rack travel in m: 12.30...12.50 4th speed rpm : 925 Rack travel in m: 11.70...12.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1000 Pressure Rack travel mm : 12.50...12.60 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 8.50...8.70 2nd pressure hPa : 190 Rack travel in m: 8.90...9.00 3rd pressure hPa : 520 Rack travel in m: 11.10...11.40 START CUT-OUT

1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1000 Speed rpm : 1100 Del.quantity cm3/: 218.0...222.0 1000 s: (215.0...225.0) Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/: 238.0...244.0 1000 s: (235.0...247.0) Aneroid pressure h: 520 Speed rpm : 500
Del.quantity cm3/ : 191.0...197.0
1000 s: (188.0...200.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 119.0...121.0 1000 s: (116.0...124.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.50 rpm : 1145...1160 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 225.0...245.0 1000 s: (221.0...249.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MAN-NR. 2-7904 **APPLICATION** 0mnibus

1st version

Speed

Note remarks

Test sheet : MAN 11,9a34 : 30.09.88 Edition : 6.4.88 Replaces Test oil : ISO-4113

: 0 402 036 075 Combination no.

Injection pump

Pump designation : PES6P120A720/3LS470-

EP type number : 0 412 026 050

Governor

Governor design: : RQ300/1100PA813-5

Governer no. : 0 421 801 434

Customer-spec. information Customer

: D2866TUH Engine

: 213.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 18.5...18.7

100 s: (18.2...19.0)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 750

Speed

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Aneroid pressure h: 1000

Del.quantity : 185.0...187.0 1000 : (182.0...190.0)

: 5.00 cm3 Spread

1000 : (9,00)

RATED SPEED

1st version

Setting point:

: 750 rpm

Rack travel in mm : 15.5

Testing:

1st rack travel in: 9.80 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.00,..1.00 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.3 Testing: rpm : 100 Speed Minimum rack trave: 6.80 Speed rpm : 300 Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00 rpm : 390...430 Speed TORQUE CONTROL Dimension a mm : -Torque control curve - 1st version 1st speed rpm : 1100 2nd speed rpm : 750

Rack travel in m: 11.00...11.10 Rack travel in m: 11.00...11.20

Aneroid/Altitude Compensator Test

1st version Setting rpm : 500 Speed hPa : 1000 Pressure Rack travel mm : 10.80...10.90

Measurement

Speed 1/min: 500

1st pressure hPa : -Rack travel in m: 8.50...8.70 2nd pressure hPa : 190 Rack travel in m: 8.80...8.90 3rd pressure hPa : 350

Rack travel in m: 9.80...10.20

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 Speed rpm : 1100 Del.quantity cm3/: 190.0...196.0 1000 s: (187.0...199.0) Aneroid pressure h: 350 rpm : 500 Speed Del.quantity cm3/: 164.0...176.0 1000 s: (161.0...179.0) Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 119.0...121.0 1000 s: (116.0...124.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80 Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 205.0...225.0 1000 s: (201.0...229.0)

LOW IDLE

rpm : 300 Speed Rack travel in mm: 5.20...5.40

Del.quantity cm3/: 12.0...18.0

1000 s: (9.0...21.0)

Spread cm3: 8.00

1000 s: (12.00)

Remarks: : MAN-NR. 2-7892

APPLICATION Omnibus

Note remarks

Test sheet : MAN 11,9a35 Edition : 11.07.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 036 076

Injection pump

Pump designation : PES6P120A720/3LS470-

: 0 412 026 055 EP type number

Governor

Governor design. : RQV300...1100PA700-5

: 0 421 813 713 Governer no.

Customer-spec. information Customer

: D2866LFG Engine

: 243.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 20.2...20.4

100 s: (19.9...20.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 4.7...4.9 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.50...1.90 travel mm

rpm : 450 2nd speed

: 2.90...3.50 travel mm

3rd speed rpm : 850

: 5.50...5.90 travel mm

rpm : 1100 4th speed

: 7.40...7.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

rpm : 1125 Speed

Rack travel in mm : 15.20...17.80

Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750 Aneroid pressure h: 1000

Del.quantity : 202.0...207.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 9.50 Speed rpm: 1140...1150 2nd rack travel in: 4.00 Speed rpm : 1215...1245 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 14...22 Testing: Speed rpm : 100 Minimum rack trave: 6.30 Speed rpm : 300 Rack travel in mm : 4.70...4.90 CONSTANT REGULATION Speed rpm : 310...410 TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 11.30...11.40 2nd speed rpm : 1100 Rack travel in m: 10.50...10.60 3rd speed rpm : 850 Rack travel in m: 11.00...11.20 4th speed rpm : 975 Rack travel in m: 10.70...11.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 1000 Pressure Rack travel mm : 11.30...11.40 Measurement 1/min : 500

Rack travel in m: 9.30...9.40 3rd pressure hPa : 280 Rack travel in m: 10.50...10.90 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm_ : 1100 Speed Del.quantity cm3/: 204.0...206.0 1000 s: (201.0...209.0) Aneroid pressure h: 1000 rpm : 650 Del.quantity cm3/: 208.0...214.0 1000 s: (205.0...217.0) Aneroid pressure h: 280 rpm_ : 500 Speed Del.quantity cm3/: 184.0...196.0 1000 s: (181.0...199.0) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.50 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 225.0...245.0 1000 s: (221.0...249.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0) cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

Speed

1st pressure hPa : -

2nd pressure hPa : 85

Rack travel in m: 8.90...9.10

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 6-2-4-1-5-3 : MAN 11.9 j : 04.11.88 Test sheet Edition : 16.5.88 : ISO-4113 Replaces Test oil Phasing : 0-60-120-180-240-300 Combination no. : 0 402 036 726 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720LS3205 EP type number : 0 412 026 729 BASIC SETTING Governor Governor design. : RQ300/1100PA813-2 1st speed rpm : 700 : 0 421 801 416 Governer no. Rack travel in mm: 13.00...13.10 Customer-spec. information Customer : MAN Del.quantity cm3/: 23.4...23.6 Engine : D2866LX 100 s: (23.1...23.9) 1st version kW : 265.0 Spread cm3 : 0.5Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Test oil Rack travel in mm: 4.1...4.3 inlet temp. DC : 38...42 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) Overflow valve cm3 : 0.8 Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar : 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 : 1 688 901 019 assembly Speed rpm : 650 Rack travel in mm : 19.20...20.80 Opening. FULL LOAD DELIV. AT FULL LOAD STOP : 207...210 pressure, bar Orifice plate 1st version diameter mm rpm : 700 : 0,8 Speed Aneroid pressure h: 1200 Del.quantity : 234.0...236.0 1000 : (231.0...239.0) Test lines : 1 680 750 067 cm3 : 5.00 1000 : (9.00) Spread Outside diameter x Wall thickness : 6.00x1.50x1000 RATED SPEED x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Setting point: per values Speed rpm : 650 Rack travel in mm: 20.0 BEGINNING OF DELIVERY

Testing:

1st rack travel in: 11.80

Test pressure, bar: 25...27

Speed rpm : 1145...1160 2nd rack travel in: 4.00

rpm : 1190...1220 Speed 4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 4.2

Testing:

Speed rpm : 100 Minimum rack trave: 5.70 Speed rpm : 300

Rack travel in mm : 4.10...4.30

Rack travel in mm : 2.00

Speed rpm : 345...385

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 13.10...13.20

2nd speed rpm : 700

Rack travel in m: 13.70...13.90

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500 Pressure hPa : 1200

Rack travel mm : 13.00...13.10

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 110

Rack travel in m: 9.80...10.00

3rd pressure hPa : 470

Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 1100 Del.quantity cm3/: 226.0...232.0

1000 s: (223.0...235.0)

Aneroid pressure h: -

E18

Speed rom : 500

Del.quantity cm3/: 134.0...136.0

1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1145...1160

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.10...4.30 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0) Spread cm3: 8.00

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7889

Note remarks

: MAN 11,9 k Test sheet Edition : 04.11.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 036 727

Injection pump

Pump designation : PES6P120A720LS3205

EP type number : 0 412 026 729

Governor

Governor design. : RQV300...1100PA876-1

Governer no. : 0 421 813 670

Customer-spec. information Customer : MAN

Engine : D2866LX

1st version kW : 265.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.70...3.80 Prestroke mm : (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm: 4.1...4.3 Del.quantity cm3/: 1.7...2.3

100 s: (1.4...2.6)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 900 travel mm : 6.00...6.40

4th speed rpm : 1100 travel mm : 7.70.

: 7.70...7.90

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1175 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed Aneroid pressure h: 1200

Del.quantity : 234.0...236.0 1000 : (231.0...239.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11.80

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1250...1280

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 13...21

Testing:

Speed rpm : 100 Minimum rack trave: 5.70

Speed rpm : 300

Rack travel in mm : 4.10...4.30

CONSTANT REGULATION

rpm : 300...400 Speed

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.80...12.90

2nd speed rpm : 700 Rack travel in m: 13.00...13.10

3rd speed rpm : 1000

Rack travel in m: 12.90...13.00

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed Lbw Pressure hPa : 1200

Rack travel mm : 13.00...13.10

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 110

Rack travel in m: 9.80...10.00

3rd pressure hPa : 470

Rack travel in m: 11.60...12.00

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 1100 Del.quantity cm3/ : 226.0...232.0 1000 s: (223.0...235.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1140...1150

INTERMEDIATE RATED SPEED

Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190.0...210.0

1000 s: (186.0...214.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 4.10...4.30 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0) Spread cm3: 8.00

1000 s: (12,00)

Remarks:

: MAN-NR. 2-7890

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 Test sheet : MAN 11,9 k1 Edition : 30.09.88 Replaces Test oil : ISO-4113 Phasing Combination no. : 0 402 036 728 Tolerance + - 0 Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720LS3205-1 : 0 412 026 732 EP type number BASIC SETTING Governor Governor design. : RQV300...1100PA876-2 1st speed Governer no. : 0 421 813 712 Rack travel in mm : 12.80...12.90 Customer-spec. information Customer : MAN Del.quantity cm3/: 22.8...23.0 Engine : D2866LXG 1st version kW : 265.0 Spread Rated speed TEST BENCH REQUIREMENTS 2nd speed Test oil Rack travel in mm: : 4.1...4.3 inlet temp. OC : 38...42 Del.quantity cm3/: 1.7...2.3 Overflow valve Spread : 1 417 413 025 Inlet press., bar : 1.50 Test nozzle holder assembly : 1 688 901 019 Opening. pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness x Length mm

(B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 1.60...2.00 2nd speed rpm : 450 : 2.80...3.20 travel mm 3rd speed rpm : 800 travel mm : 5.30...5.70 4th speed rpm : 1100 : 8.00...8.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 : 6.00x1.50x1000 Speed rpm : 1120 Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. 1st version Speed rpm : 700 Aneroid pressure h: 1000

: 3.70...3.80

: 0.50 (0.75)

100 s: (22.5...23.3)

rpm : 700

cm3 : 0.5

100 s: (0.9)

rpm : 300.0

cm3 : 0.8

100 s: (1.2)

100 s: (1.4...2.6)

: (3.65...3.85)

: 0-60-120-180-240-300

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 11.80 rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1240...1270

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 13...21

Testing:

Speed rpm : 100 Minimum rack trave: 5.70

rpm : 300 Speed

Rack travel in mm : 4.10...4.30

CONSTANT REGULATION

rpm : 300...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting Speed

: 500 rpm hPa : 1000 Pressure

Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.70...9.90

2nd pressure hPa : 150

Rack travel in m: 10.10...10.20

3rd pressure hPa : 510

Rack travel in m: 11.60...12.00

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 1100

E22

Del.quantity cm3/: 226.0...232.0 1000 s: (223.0...235.0)

Aneroid pressure h: rpm_ : 500 Speed

Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80

rpm : 1140...1150 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.10...4.30 Del.quantity cm3/: 17.0...25.0

1000 s: (14.0...26.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.30...4.40 Prestroke mm : (4.25...4.45) Rack travel in mm : 9.00...12.00 Note remarks : 1- 3- 5- 4- 2 Firing order Test sheet : MB 10,0 l Edition : 04.11.88 Replaces Test oil : ISO-4113 Phasing : 0-72-144-216-288 Combination no. : 0 402 045 700 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PESSP110A820LS3218 EP type number : 0 412 015 700 BASIC SETTING Governor Governor design. : RQ300/1100PA327-10 1st speed rpm : 1100 Governer no. : 0 421 801 457 Rack travel in mm : 11.20...11.30 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 14.4...14.6 Engine : 0M449 100 s: (14.1...14.8) 1st version kW : 147.0 cm3 : 0.4Spread Rated speed : 2200 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Test oil Rack travel in mm: 6.8...7.2 inlet temp. °C Del.quantity cm3/ : 1.2...1.8 : 38...42 100 s: (0.9...2.0) Overflow valve Spread cm3 : 0.4: 1 417 413 025 100 s: (0.7) Inlet press., bar : 1.50 GUIDE SLEEVE POSITION Control-lever position Overflow Degree: -1 quantity min. 1/h: 100...120 Speed rpm : 600 Rack travel in mm : 13.00...14.00 Test nozzle holder : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP assembly Opening 1st version rpm : 1100 pressure, bar : 172...175 Speed Del.quantity : 144.0...148.5) Test lines : 1 680 750 015 : 4.00 Spread cm3 1000 : (8,00) Outside diameter x Wall thickness RATED SPEED : 6,00x1,50x600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: Set equal delivery quant. rpm : 600 Speed per values Rack travel in mm: 13.5

Testing:

Speed

1st rack travel in: 10.20

rpm : 1140...1150

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

2nd rack travel in: 4.00

Speed rpm : 1200...1230

4th rack travel in: 1250 Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.0

Testing:

Speed rpm : 200 Minimum rack trave: 9.00 rpm : 300 Speed

Rack travel in mm: 6.80...7.20 Rack travel in mm: 2.00

rpm : 360...400 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 121.0...125.0 1000 s: (118.0...128.0)

cm3 : 5.00 Spread

1000 s: (9,00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.30...4.40 : (4.25...4.45) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1- 3- 5- 4- 2 : MB 10,0 L 1 Test sheet : 04.11.88 Edition Replaces Test oil : ISO-4113 Phasing : 0-72-144-216-288 Combination no. : 0 402 045 701 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PES5P110A820LS3218 EP type number : 0 412 015 700 BASIC SETTING Governor Governor design. : RQ300/1100PA327-11 1st speed rpm : 1100 : 0 421 801 458 Governer no. Rack travel in mm : 10.40...10.50 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 13.5...13.7 : 0M449 Engine 100 s: (13.2...13.9) 1st version kW : 140.0 Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.8) rpm : 300.0 Test oil 2nd speed Rack travel in mm: 6.8...7.2

Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

Spread cm3: 0.4

100 s: (0.7) inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Over flow Control-lever position quantity min. 1/h: 100...120 Degree: -1 Speed rpm : 600 Test nozzle holder Rack travel in mm : 13.00...14.00 assembly : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP Opening. pressure, bar : 172...175 1st version Speed rpm : 1100 : 135.0...137.0 Del.quantity Test lines 1000 : (132.5...139.5) : 1 680 750 015 : 4.00 Spread cm3 Outside diameter 1000 : (8.00) x Wall thickness x Length mm : 6.00x1.50x600 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values ____ Speed 3 rpm : 600 Rack travel in mm: 13.5 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 9.50

Speed rpm : 1140...1150

2nd rack travel in: 4.00 Speed rpm : 1200...1230 4th rack travel in: 1250

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.0

Testing:

rpm : 200 Speed Minimum rack trave: 9.00 Speed rpm: 300 Rack travel in mm: 6.80...7.20 Rack travel in mm: 2.00

rpm : 360...400 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 600 Speed

Del.quantity cm3/: 110.0...114.0 1000 s: (107.0...117.0) Spread cm3: 5.00

1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
 1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 Test sheet : MAN 11,9a32 : 30.09.88 Edition Replaces : 18.12.87 Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 402 046 316 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720LS470 EP type number : 0 412 026 046 BASIC SETTING Governor Governor design. : RQ250/1100PA658-11 1st speed rpm : 750 : 0 421 801 295 Governer no. Rack travel in mm : 12.50...12.60 Customer-spec. information Customer : MAN Del.quantity cm3/: 23.8...24.0 Engine : D2866KF 100 s: (23.5...24.3) 1st version kW : 265.0 cm3 : 0.5 Spread Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 250.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.2...1.8 Test oil inlet temp. OC : 38...42 100 s: (0.9...2.1) cm3 : 0.8 Overflow valve Spread : 1 417 413 025 100 s: (1.2) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Test nozzle holder Degree: -2 rpm : 600 : 1 688 901 019 Speed assembly Rack travel in mm : 19.20...20.80 Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 Orifice plate 1st version diameter mm : 0,8 Speed rpm : 750 Aneroid pressure h: 1000 Del.quantity : 238.0...240.0 1000 : (235.0...243.0) Spread cm3 : 5.00 Test lines : 1 680 750 067

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.30

BEGINNING OF DELIVERY Test pressure, bar: 25...27

per values

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

: 6.00x1.50x1000

Outside diameter x Wall thickness

x Length mm

: 1145...1160 Speed rpm 2nd rack travel in: 4.00 rpm : 1180...1210 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 5.3 Testing: Speed : 100 rpm Minimum rack trave: 6.80 Speed rpm : 250 Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00 : 315...355 Speed rom TORQUE CONTROL Dimension a mm : 0.55 Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 12.70...12.80 2nd speed rpm : 1100 Rack travel in m: 11.30...11.40 3rd speed rpm : 915 Rack travel in m: 12.30...12.50 4th speed rpm : 975 Rack travel in m: 11.60...11.90 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 1000 : 12.50...12.60 Rack travel mm Measurement 1/min : 508 Speed 1st pressure hPa : -Rack travel in m: 9.30...9.50 2nd pressure hPa : 400 Rack travel in m: 11.10...11.20 3rd pressure hPa : 110 Rack travel in m: 9.40...9.70 START CUT-OUT Speed 1/min: 190 (210) FUEL DELIVERY CHARACTERISTICS

Speed rpm : 1100 Del.quantity cm3/: 214.0...218.0 1000 s: (211.0...221.0) Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/: 239.0...245.0 1000 s: (236.0...248.0) Aneroid pressure h: 400 Speed rpm : 500 Del.quantity cm3/ : 188.0...200.0 1000 s: (185.0...203.0) rpm : 500 Speed Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30 rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 225.0...245.0 1000 s: (221.0...249.0)

LOW IDLE

Remarks:

Speed rpm : 250 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0) Spread cm3 : 8.00 1000 s: (12.00)

: MAN-NR. 2-7599

1st version Aneroid pressure h: 1000

Note remarks

: RVI 9.8 a 7 : 05.08.88 Test sheet Edition Replaces : 19.5.88 Test oil : ISO-4113

Combination no. : 0 402 046 330

Injection pump

Pump designation : PES6P120A320RS419-2

EP type number : 0 412 026 048

Governor

Governor design. : RQ275/1050PA844 Governer no. : 0 421 801 379

Customer-spec. information Customer : RVI

: MIPS062045B Engine

1st version kW : 176.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)
Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10.00...11.00

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 16.1...16.3

100 s: (15.8...16.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 700

De! quantity : 161.0...163.0 1000 : (158.0...166.0)

cm3 : 5.00

Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 20.0 Testing:

1st rack travel in: 8.20

Speed rpm : 1105...1120 2nd rack travel in: 4.00

Speed rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm : 3.4

Testing:

Speed rpm : 200 Minimum rack trave: 5.50 Speed rpm : 275
Rack travel in mm : 3.50...3.70

Rack travel in mm: 2.00 rpm : 310...350 Speed

TORQUE CONTROL

Dimension a mm : -Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 9.70...9.80
2nd speed rpm : 700
Rack travel in m: 9.70...9.90

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed Pressure

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.20...8.30

2nd pressure hPa : 260

Rack travel in m: 8.90...9.00

3rd pressure hPa : 230

Rack travel in m: 8,40,..8,60

START CUT-OUT

Speed 1/min: 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm: 700 Del.quantity cm3/: 149.0...155.0 1000 s: (146.0...158.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 103.0...105.0

1000 s: (100.0...108.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.20

Speed rpm : 1105...1120

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 3.50...3.70

Remarks:

Start-of-delivery mark 9.5° cam angle

after start of delivery cyl. 1

APPLICATION

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BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : RVI 9,8 a 8 Test sheet Edition : 05.08.88 Replaces : 19.5.88 Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 : 0 402 046 332 Combination no. Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6P120A320RS419 EP type number : 0 412 026 037 1st speed rpm: 1050 Governor Governor design. : RQ275/1050PA844-1 Rack travel in mm : 10.10...10.20 Governer no. : 0 421 801 421 Del.quantity cm3/ : 18.5...18.7 Customer-spec. information Customer : RVI 100 s: (18.2...19.0) : MIPR062045A Engine Spread cm3 : 0.51st version kW : 210.0 100 s: (0.9) Rated speed : 2100 rpm : 275.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 1.5...2.1 Test oil 100 s: (1.2...2.4) inlet temp. °C : 38...42 cm3 : 0.8 Spread 100 s: (1.2) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Inlet press., bar : 1.50 Degree: -2 Speed rpm : 600 Test nozzle holder Rack travel in mm : 19.20...20.80 : 1 688 901 019 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening : 207...210 pressure, bar 1st version Speed rpm: 1050
Aneroid pressure h: 700
Del.quantity: 185.0...187.0 Orifice plate diameter mm : 0,8 1000 : (182.0...190.0) cm3 : 5.00 cm3 Spread 1000 : (9.00) Test lines : 1 680 750 067 Outside diameter RATED SPEED x Wall thickness : 6.00x1.50x1000 1st version x Length mm (A) Injection pump setting values Setting point: Insp. values in parentheses Speed rpm : 600 Set equal delivery quant. Rack travel in mm : 20.0 per values

Testing:

Speed

1st rack travel in: 9.10

2nd rack travel in: 4.00

rpm : 1110...1120

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Speed rpm : 1185...1215

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm: 4.20

Testing:

Speed rpm : 200 Minimum rack trave: 5.90 Speed rpm : 275 Rack travel in mm : 4.10...4.30

Rack travel in mm: 2.00 rpm : 310...350 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed Pressure

Rack travel mm : 10.10...10.20

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 8.00...8.20

2nd pressure hPa : 360

Rack travel in m: 9.60...9.70

3rd pressure hPa : 160

Rack travel in m: 8.60...8.80

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 650 Speed

Del.quantity cm3/: 168.0...174.0 1000 s: (165.0...177.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 105.0...107.0 1000 s: (102.0...110.0)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 9.10

Speed rpm : 1110...1120

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 275

Rack travel in mm : 4.10...4.30

Remarks:

Start-of-delivery mark 9.5° cam angle

after start of delivery cyl. 1

: 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks : RVI 9,8 d Test sheet Phasing : 0-60-120-180-240-300 : 30.09.88 Edition : 7.3.88 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING : 0 402 046 333 Combination no. rpm: 900 1st speed Injection pump Pump designation : PES6P120A320RS514 Rack travel in mm : 12.70...12.80 EP type number : 0 412 026 052 Governor Del.quantity cm3/: 20.6...20.8 Governor design. : RQV375...900PA885 : 0 421 813 689 Governer no. 100 s: (20.3...21.1) Customer-spec, information Spread cm3 : 0.5Customer : RVI 100 s: (0.9) Engine : MIDRO62045 2nd speed rpm: 375.0
Rack travel in mm: 5.3...5.5
Del.quantity cm3/: 1.4...2.0 TEST BENCH REQUIREMENTS 100 s: (1.1...2.3) Test oil inlet temp. °C : 38...42 Spread cm3 : 0.8100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 350 : 1 688 901 019 assembly travel mm : 1.00...1.20 rpm : 500 2nd speed : 3.00...3.40 Opening travel mm : 207...210 : 750 pressure, bar 3rd speed rpm : 5.90...6.30 travel mm rpm : 900 Orifice plate 4th speed : 7.70...7.90 diameter mm : 0,8 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 067 Control-lever position Degree: -1 rpm : 930 Outside diameter x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00X1.50X1000 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 900 Speed : 206.0...208.0 per values Del.quantity : (203.0...211.0) 1000 cm3 : 5.00 BEGINNING OF DELIVERY Spread Test pressure, bar: 25...27 1000 : (9.00)

RATED SPEED

1st version

F05

Prestroke mm

: 2.80...2.90

Rack travel in mm : 9.00...12.00

: (2.75...2.95)

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 11.70 rpm : 940...950 Speed 2nd rack travel in: 4.00

Speed rpm : 1015...1045 4th rack travel in: 1150

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 12...20

Testing:

rpm : 100 Speed Minimum rack trave: 6.90 rpm : 375 Speed Rack travel in mm : 5.50...5.50

CONSTANT REGULATION

rpm : 420...590 Speed

START CUT-OUT

Speed 1/min : 295 (315)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: -1.00 rpm : 940...950 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 375
Rack travel in mm : -7.20...-7.40
Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0) cm3 : 8.00

Spread

1000 s: (12.00)

Remarks:

: BAUDOUIN

APPLICATION Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 firing order Note remarks Test sheet : RVI 8,8 m Phasing : 0-60-120-180-240-300 : 05.08.88 Edition : 19.5.88 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 402 046 334 rpm: 1150 1st speed Injection pump Pump designation : PES6P120A320RS515 Rack travel in mm : 10.20...10.30 EP type number : 0 412 026 053 Governor Del.quantity cm3/: 14.3...14.5 Governor design. : RQV300...1150PA527K Governer no. : 0 421 815 164 100 s: (14.0...14.8) Customer-spec. information Spread cm3 : 0.5 Customer : RVI 100 s: (0.9) : MIDR 062030B Engine rpm : 600.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 4.6...4.8 Del.quantity cm3/: 1.8...2.4 Test oil 100 s: (1.5...2.7) inlet temp. °C cm3 : 0.8 : 38...42 Spread 100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 300 : 1 688 901 019 assembly : 1.70...2.10 travel mm 2nd speed rpm : 900 : 5.80...6.20 Opening travel mm rpm : 1150 : 207...210 pressure, bar 3rd speed : 7.40...7.60 travel mm Orifice plate diameter mm GUIDE SLEEVE POSITION : 0,8 Control-lever position Degree: -1 Test lines : 1 680 750 067 rpm : 1225 Speed Rack travel in mm : 15.20...17.80 Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP : 6.00x1.50x1000 x Length mm 1st version rpm : 1150 (A) Injection pump setting values Speed Insp. values in parentheses Del.quantity : 143.0...145.0 1000 : (140.0...148.0) Set equal delivery quant. per values cm3 : 5.00 Spread 1000 : (9,00) BEGINNING OF DELIVERY Test pressure, bar: 25...27

RATED SPEED

1st version Control lever

position degrees: 57...65

F07

Prestroke mm

: 2.80...2.90

Rack travel in mm : 9.00...12.00

: (2.75...2.95)

Testing:

1st rack travel in: 9.20

rpm : 1235...1245 Speed

2nd rack travel in: 4.00

Speed rpm : 1305...1335

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed rpm : 200 Minimum rack trave: 6.50 Speed rpm : 300

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 320...440

TORQUE CONTROL

Dimension a mm : 1.80

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.20...10.30

2nd speed rpm : 750
Rack travel in m: 9.20...9.30

3rd speed rpm : 500
Rack travel in m: 8.60...8.80
4th speed rpm : 350
Rack travel in m: 8.40...8.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 120.0...126.0

1000 s: (117.0...129.0)

rpm : 500 Speed

Del.quantity cm3/: 67.0...73.0

1000 s: (64.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1235...1245 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (126.0...154.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 13.0...19.0 1000 s: (10.0...22.0)

cm3 : 8.00Spread 1000 s: (12.00)

Remarks:

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 Test sheet : MAN 11,9 L : 26.08.88 Edition Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 402 046 336 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720RS517 EP type number : 0 412 026 054 BASIC SETTING Governor Governor design. : RQ750PA895 1st speed rpm : 700 : 0 421 801 447 Governer no. Rack travel in mm : 11.80...11.90 Customer-spec. information Customer : MAN Del.quantity cm3/: 21.0...21.2 Engine : D2866TUE 100 s: (20.7...21.5) 1st version kW : 190.0 Spread cm3 : 0.5: 1500 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 400.0 Rack travel in mm : 4.4...4.6 Del.quantity cm3/ : 1.2...1.8 Test oil inlet temp. OC : 38...42 100 s: (0.9...2.1) Overflow valve cm3 : 0.8 Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder 1st version : 1 688 901 019 rpm : 700 assembly Speed : 210.0...212.0 Del.quantity 1000 : (207.0...215.0) cm3 : 5.00 Opening : 207...210 pressure, bar Spread 1000 : (9,00) Orifice plate diameter mm : 0,8 RATED SPEED 1st version Test lines : 1 680 750 067 Testing: Outside diameter

1st rack travel in: 10.80
Speed rpm: 750...755
2nd rack travel in: 4.00
Speed rpm: 788...796
4th rack travel in: 900

Speed rpm : 0.00...1.00

STARTING FUEL DELIVERY

Speed rpm: 100

F09

x Wall thickness

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

x Length mm

: 6.00x1.50x1000

Del.quantity cm3/: 170.0...190.0 1000 s: (166.0...194.0)

Remarks:

:

Note remarks

Test sheet : KHD 9,6 u Edition : 18.10.88

Replaces Test oil

: ISO-4113

Combination no. : 0 402 046 783

Injection pump

Pump designation : PES6P110A720RS3104 EP type number : 0 412 016 712

Governor

Governor design. : RQV300...1150PA850

Governer no. : 0 421 813 598

Customer-spec. information

Customer

: KHD

Engine

: BF6L513R

1st version kW : 177.0

Rated speed

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Cutside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

F11

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 15.1...15.3

100 s: (14.8...15.6)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.4)

Spread cm3 : 0.4 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed travel mm

: 1.30...1.40 2nd speed rpm : 390

travel mm

: 2.40...2.70

3rd speed rpm: 460

: 2.80...3.20 travel mm

4th speed rpm : 1190

: 8.40...8.50 travel mm

rpm : 1290 5th speed

: 9.40...9.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1190 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 900

: 151.0...153.0 Del quantity

1000 : (148.0...156.0)

cm3 : 4.00 Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 12.40

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1310...1340

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 17...25

Testing:

Speed rpm : 100 Minimum rack trave: 9.40 rpm : 300

Rack travel in mm : 7.90...8.10

CONSTANT REGULATION

Speed rpm : 320...480

TORQUE CONTROL

Dimension a mm : 0.10

Torque control curve - 1st version

1st speed rpm : 1150 Rack travel in m: 13.40...13.50

2nd speed rpm : 600

Rack travel in m: 13.50...13.70

3rd speed rpm : 950

Rack travel in m: 13.45...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 450 hPa : 900 Speed rpm Pressure

Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 450

1st pressure hPa : -

Rack travel in m: 12.40...12.60

2nd pressure hPa : 420

Rack travel in m: 13.20...13.30 3rd pressure hPa : 360

Rack travel in m: 12.70...12.90

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm_ : 600 Speed

Del.quantity cm3/: 156.0...160.0 1000 s: (154.0...162.0)

Aneroid pressure h:

Speed rpm : 450

Del.quantity cm3/: 123.0...125.0 1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 170.0...200.0 1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : UNI 9.5 c : 08.06.88 : 11.3.88 Test sheet : 0-60-120-180-240-300 Phasing Edition Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 402 046 790 rpm: 1025 1st speed Injection pump Pump designation : PES6P110A720RS3140 Rack travel in mm : 12.00...12.10 EP type number : 0 412 016 716 Governor Del.quantity cm3/: 14.6...14.9 Governor design. : R0310/1025PA872 Governer no. : 0 421 801 413 100 s: (14.3...15.1) Customer-spec. information cm3 : 0.4Spread Customer : IVECO-UNIC 100 s: (0.7) : 8460.21.611 Engine rpm : 310.0 2nd speed Rack travel in mm: 7.1...7.3 1st version kW : 162.0 Del.quantity cm3/: 1.8...2.3 Rated speed : 2050 100 s: (1.5...2.5) TEST BENCH REQUIREMENTS cm3 : 0.4Spread 100 s: (0.7) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: 108 : 1 417 413 025 rpm : 600 Rack travel in mm: 19.20...20.80 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : C 681 343 009 assembly 1st version Speed rpm : 1025 Aneroid pressure h: 700 Openina Del. quantity : 140.0....151.5) pressure, bar : 172...175 cm3 : 4.00Spread Test lines : 1 680 750 015 1000 : (7,50) Outside diameter RATED SPEED x Wall thickness x Length mm : 6.00x1.50x600 1st version (A) Injection pump setting values Setting point: Speed rpm : 600 Rack travel in mm : 20.0 Insp. values in parentheses Set equal delivery quant. per values Testing: BEGINNING OF DELIVERY 1st rack travel in: 11.00 Test pressure, bar: 25...27 rpm : 1070...1085 Speed 2nd rack travel in: 4.00 Prestroke mm : 3.20...3.30 rpm : 1135...1165 Speed 4th rack travel in: 1300

rpm : 0.00...1.00

Speed

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 310 Rack travel in mm : 7.2

Testing:

Speed rpm: 100 Minimum rack trave: 8.70

Speed rpm : 310
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting

om : 500 hPa : 700 Speed rom Pressure

Rack travel mm : 12.00...12.10

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.40

2nd pressure hPa : 235

Rack travel in m: 11.40...11.50
3rd pressure hPa : 200
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm_ : 500 Speed

Del.quantity cm3/: 108.0...111.0 1000 s: (105.5...113.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1070...1085

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...140.0
 1000 s: (116.0...144.0)

Remarks:

F14

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

: KHD 9,6 v 1 Test sheet Edition : 01.07.88 Reptaces : 29.1.88 Test oil : ISO-4113

Combination no. : 0 402 046 794

Injection pump

Pump designation : PES6P110A720RS3104 EP type number : 0 412 016 712

Governor

Governor design. : R9V300...1075PA862-1

Governer no. : 0 421 813 684

Customer-spec. information Customer : KHD

: BF6L513 R/C Engine

: 150.0 1st version kW Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1075 1st speed

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 13.1...13.3

100 s: (12.8...13.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 7.6...7.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.4100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.10...1.50 travel mm

2nd speed rpm : 450

travel mm : 2.60...3.20 rpm : 700 3rd speed

travel mm

: 4.80...5.40

4th speed

rpm : 1110 : 7.90...8.10 travel mm

rpm : 1230 5th speed

travel mm : 9.00...9.40

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1140 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1075 Speed

: 131.0...133.0 Del.quantity

1000 : (128.0...136.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED 1st version Control lever position degrees: 49...57 Testing: 1st rack travel in: 11.40 Speed rpm : 1110...1120 2nd rack travel in: 4.00 Speed rpm : 1220...1250 4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 16...24 Testing: Speed rpm : 100 Minimum rack trave: 9.10 Speed rpm: 300 Rack travel in mm: 7.60...7.80 CONSTANT REGULATION rpm : 300...480 Speed TORQUE CONTROL Dimension a mm :-FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 133.0...139.0 1000 s: (130.0...142.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.40 Speed rpm : 1110...1120 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 170.0...200.0 1000 s: (166.0...204.0)

Remarks:

Note remarks

Test sheet : UNI 9,5 d Edition : 05.08.88

Replaces Test oil

: ISO-4113

Combination no. : 0 402 046 796

Injection pump

Pump designation : PES6P110A720RS3140

EP type number : 0 412 016 716

Governor

Governor design. : RQV275...1150PA501-5

Governer no. : 0 421 813 694

Customer-spec. information

Customer : IVECO-UNIC

Engine : 8460,21,010

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 13.8...14.1

100 s: (13.5...14.3)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 275.0 2nd speed Rack travel in mm : 6.8...7.0 Del.quantity cm3/: 2.2...2.7

100 s: (1.9...2.9)

cm3 : 0.4 Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.90...1.10

2nd speed rpm : 400

travel mm : 2.50...2.90

3rd speed rpm : 850 travel mm

: 4.90...5.30

4th speed rpm : 1150

: 7.70 ... 7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1240 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 700

Del.quantity : 138.0...141.0 1000 : (135.5...143.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.10

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1275...1305 4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 6.9

Testing:

Speed rpm : 100

Minimum rack trave: 8.40

Speed rpm : 275

Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

rpm : 275...520 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed Pressure

Rack travel mm : 11.10...11.20

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.90...10.10

2nd pressure hPa : 240

Rack travel in m: 10.80...10.90
3rd pressure hPa : 210
Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 105.0...108.0 1000 s: (102.5...110.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1190...1200 Speed

F18

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : RVI 9,8 f Edition : 30.09.88 Replaces

Test oil : ISO-4113

Combination no. : 0 402 046 798

Injection pump

Pump designation : PES6P120A320RS3139

EP type number : 0 412 026 718

Governor

Governor design. : R0275/1050PA893 Governer no. : 0 421 813 657

Customer-spec. information Customer : RVI

Engine : MIDR 062045 M

: 236.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 21.0...21.2

100 s: (20.7...21.5)

cm3 : 0.5 Spread

100 s: (0.9)

2nd speed rpm : 275.0
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 2.3...2.9

100 s: (2.0...3.2)

Spread cm3 : 0.8100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 Speed rpm : 600

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 1000

Del.quantity : 210.0...212.0

1000 : (207.0...215.0) cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.50

Speed rpm : 1115...1130

2nd rack travel in: 4.00

rpm : 1205...1235 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 275 Rack travel in mm : 5.3

Testing: : 200 Speed rpm Minimum rack trave: 7.00 : 275 Speed rpm

Rack travel in mm : 5.20...5.40

Rack travel in mm : 2.00 Speed rpm : 340...380

TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 600 Rack travel in m: 11.50...11.60 2nd speed rpm : 1050 Rack travel in m: 11.30...11.50

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : 1000 Pressure

Measurement

Speed 1/min : 500

1st pressure hPa : -Rack travel in m: 8.3...8.50

2nd pressure hPa : 400

Rack travel in m: 11.00...11.10

3rd pressure hPa : 160 Rack travel in m: 8.90...9.10

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 600 Speed rpm

Del.quantity cm3/: 208.0...214.0

1000 s: (205.0...217.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 96.0...98.0 1000 s: (93.0...101.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 1115...1130

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 23.0...29.0

1000 s: (20.0...32.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

APPLICATION Omnibus

Note remarks

Test sheet : KHD 9,6 u 1 Edition : 05.08.88

Replaces Test oil : ISO-4113

Combination no. : 0 402 046 799

Injection pump

Pump designation : PES6P110A720RS3104

EP type number : 0 412 016 712

Governor

Governor design. : RQV300...1075PA850-1 Governer no. : 0 421 813 708

Customer-spec. information Customer : KHD

Engine : BF6L413FR/513R

1st version kW : 193.0 Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

F21

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1075

Rack travel in mm: 13.40...13.50

Del.quantity cm3/: 14.5...14.7

100 s: (14.2...15.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 8.0...8.2 Del.quantity cm3/: 1.6...2.1 100 s: (1.4...2.4)

cm3 : 0.4

Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 400

travel mm : 2.70...3.30

3rd speed rpm : 600

travel mm : 4.20...4.80

4th speed rpm : 1120

: 8.40...8.60 travel mm

rpm : 1245 5th speed

travel mm : 9.60...10.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075 Aneroid pressure h: 900

Del.quantity : 145.0...147.0

1000 : (142.0...150.0) cm3 : 4.00

Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 12.40

rpm : 1115...1125 Speed

2nd rack travel in: 4.00

rpm : 1240...1270 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 16...24

Testing:

Speed rpm : 100 Minimum rack trave: 9.60 Speed rpm : 300

Rack travel in mm : 8.00...8.20

CONSTANT REGULATION

rpm : 300...490 Speed

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1075
Rack travel in m: 13.40...13.50

2nd speed rpm : 600 Rack travel in m: 13.60...13.80

3rd speed rpm : 950

Rack travel in m: 13.50...13.60

Aneroid/Altitude

Compensator Test

1st version

Setting

: 450 Speed rom hPa : 900 Pressure

Rack travel mm : 13.40...13.50

Measurement

1/min : 450 Speed

1st pressure hPa : -

Rack travel in m: 12.60...12.80

2nd pressure hPa : 420

Rack travel in m: 13.20...13.30

START CUT-OUT

1/min: 240 (260) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 600 Del.quantity cm3/ : 148.0...152.0 1000 s: (145.0...155.0)

Aneroid pressure h: -

Speed rpm: 450
Del.quantity cm3/: 123.0...125.0
1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

rpm : 1115...1125 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : UNI 9,5 a 2 Test sheet Edition : 30.09.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 046 800 Injection pump Pump designation : PES6P110A720RS3140 EP type number : 0 412 016 716 Governor Governor design. : RQV275...1100PA501-6 Governer no. : 0 421 813 711 Customer-spec. information Customer : IVECO-UNIC : 8460.21.202/206 Engine : 176.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Prestroke mm : 3.20...3.30 : (3.15...3.35)

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 13.9...14.2

100 s: (13.6...14.4)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 275.0 2nd speed Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 2.2...2.7 100 s: (1.9...2.9) cm3 : 0.4

Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rpm : 250

travel mm : 1.00...1.20

2nd speed rpm : 400

: 2.70...3.00 travel mm 3rd speed rpm : 850

: 5.00...5.20 travel mm

4th speed rpm : 1100

: 6.80...7.00 travel mm rpm : 1500 5th speed

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1260

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 700

Del.quantity : 139.0...142.0 1000 : (136.5...144.5) Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 10.30

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1245...1275 4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 11...19

Testing:

Speed rpm : 100

Minimum rack trave: 8.30

Speed rpm : 275 Rack travel in mm : 6.70...6.90

CONSTANT REGULATION

rpm : 280...525 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed rpm

Pressure

Rack travel mm : 11,30...11,40

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.90...10.10

2nd pressure hPa : 280

Rack travel in m: 10.80...10.90
3rd pressure hPa : 230
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 104.0...107.0 1000 s: (101.5...109.5)

BREAKAWAY

1st version

F24

1mm rack travel less than

full load rack tr: 10.30

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm

Speed rpm : 100 Del.quantity cm3/ : 120.0...140.0

1000 s: (116.0...144.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : KHD 9,6 u 2 Edition : 05.08.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 046 801

Injection pump

Pump designation : PES6P110A720RS3104

EP type number : 0 412 016 712

Governor

Governor design. : RQV300...1150PA850-2

: 0 421 813 718 Governer no.

Customer-spec. information : KHD Customer

Engine : BF6L513RC

: 231.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. DC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm: 14.40...14.50

Del.quantity cm3/: 17.2...17.4

100 s: (16.9...17.7)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 7.7...7.9 Del.quantity cm3/: 1.6...2.1

100 s: (1.4...2.4)

Spread cm3 : 0.4100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.40 travel mm

2nd speed rpm : 350

travel mm : 1.90...2.50

3rd speed rpm : 650

: 4.20...4.80 travel mm

4th speed rpm : 1195

: 8.40...8.60 travel mm

5th speed rpm : 1320

: 9.70...10.10 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1190 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 900

Del.quantity : 172.0...174.0 1000 : (169.0...177.0)

Spread

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 13.40

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1305...1335 4th rack travel in: 1450

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 16...24

Testing:

Speed : 100 rpm Minimum rack trave: 9.30

Speed rpm: 300 Rack travel in mm: 7.70...7.90

CONSTANT REGULATION

rpm : 300...490 Speed

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 14.40...14.50 2nd speed rpm : 700

Rack travel in m: 14.60...14.80

3rd speed rpm : 950

Rack travel in m: 14.50...14.60

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 450 Speed hPa : 900 Pressure

Rack travel mm : 14.60...14.80

Measurement

1/min : 450 Speed

1st pressure hPa : -

Rack travel in m: 12.30...12.50

2nd pressure hPa : 530
Rack travel in m: 14.00...14.10
3rd pressure hPa : 390

Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 700 Speed

Del.quantity cm3/: 176.0...180.0 1000 s: (173.0...183.0)

Aneroid pressure h: rpm : 450 Speed

Del.quantity cm3/: 123.0...125.0 1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed Lbw

Del.quantity cm3/: 170.0...200.0 1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : RVI 14.9 f3 : 24.06.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 048 048

Injection pump

Pump designation : PES8P120A320RS507 EP type number : 0 412 028 023

Governor

Governor design.: RQV275...1050PA665-3

Governer no. : 0 421 813 677

Customer-spec, information Customer : RVI

Engine : MIVRO83530 G

1st version kW : 299.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order : 1-8-4-2-7-3-

6- 5

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 19.0...19.2

100 s: (18.7...19.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm: 275.0
Rack travel in mm: 5.70...5.90
Del.quantity cm3/: 1.9...2.5

100 s: (1.6...2.8) cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

: 1.20...1.60 travel mm

2nd speed rpm : 400

travel mm : 2.90...3.40

3rd speed rpm : 525

: 3.90...4.30 travel mm

rpm : 700 4th speed

travel mm : 5.10...5.50

5th speed rpm : 1050

travel mm : 7.30...7.50

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm ; 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 700

Del.quantity : 190.0...195.0)

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.20 rpm : 1105...1115 Speed 2nd rack travel in: 4.10

Speed rpm : 1205...1235

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 14...22

Testing:

rpm Speed : 200 Minimum rack trave: 7.50 rpm : 275 Spead

Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

rpm : 290...410 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 Pressure hPa : 700

Rack travel mm : 11.20...11.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 150

Rack travel in m: 10.80...10.90

3rd pressure hPa : 115

Rack travel in m: 10.10...10.30

START CUT-OUT

1/min : 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

F28

Aneroid pressure h: 700 rpm : 650 Speed

Del.quantity cm3/: 173.0...179.0 1000 s: (170.0...182.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 120.0...122.0 1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1105...1115 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 275

Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 19.0...25.0 1000 s: (16.0...28.0) Spread cm3 : 8.00

1000 s: (12,00)

Remarks:

Start-of-delivery mark 120 cam angle

after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.30...4.40 Prestroke mm : (4.25...4.45) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 6-2-4-1-5-3 : MB 11.7 e : 27.10.88 Test sheet Edition Replaces : 16.5.88 Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 076 719 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P110A820LS3131-1 EP type number : 0 412 016 717 BASIC SETTING Governor Governer no. : RSV350...750P0A517 Governer no. : 0 421 833 215 1st speed rpm : 700 Rack travel in mm : 12.20...12.30 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 13.6...13.8 Engine : 0M427 100 s: (13.3...14.1) 1st version kW : 142.0 Spread cm3 : 0.4Rated speed : 1500 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm: 6.9...7.1 Test oil inlet temp. °C Del.quantity cm3/: 1.4...2.0 : 38...42 100 s: (1.1...2.3) Overflow valve cm3 : 0.4Spread : 1 417 413 025 100 s: (0.7) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Overflow Degree: -3 quantity min. 1/h: 100...120 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 Governor spring pre-tension assembly Click setting x :? Opening pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP : 172...175 1st version Test lines : 1 680 750 015 Speed rpm : 700 : 136.0...138.0 Del.quantity 1000 : (133.0...141.0) Outside diameter cm3 : 4.00 x Wall thickness Spread : 6.00x1.50x600 1000 : (8.00) x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version Control lever per values ____ position degrees: 24...32 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing:

1st rack travel in: 11.20

rpm : 750...755 Speed 2nd rack travel in: 4.00 Speed rpm : 775...788 4th rack travel in: 900

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 13...21 Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.0

Testing:

Speed rpm : 100 Minimum rack trave: 15.00

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 360...400

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20 Speed rpm : 740...750

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Observe VDT-I-420/120 APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 y 1 Edition : 30.09.88 : 15.6.88 Replaces Test oil : ISO-4113

Injection pump

Pump designation : PES6P120A720RS3203 EP type number : 0 412 026 728

Governor

Governor design. : RSV400...1100P2A534

Governer no. : 0 421 833 275

Combination no. : 0 402 076 722

Customer-spec. information Customer : JOHN DEERE

Engine : 6466 HF-050

1st version kW : 194.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29 Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm: 10.50

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 15.6...15.8

100 s: (15.4...16.1)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 400.0 2nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 1.7...2.2

100 s: (1.5...2.5) Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 156.5...158.5 1000 : (154.0...161.0)

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.00 Speed rpm: 1145...1155 2nd rack travel in: 4.00

rpm : 1200...1210 Speed

4th rack travel in: 1300 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 16...24 Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm: 4.80...5.00 Rack travel in mm: 2.00

rpm : 540...600 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.00...12.10

2nd speed rpm : 750

Rack travel in m: 12.80...13.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed ' : 500 Com hPa : -

Rack travel mm : 10.30...10.50

Measurement

1/min : 500 Speed

1st pressure hPa : 605 Rack travel in m: 11.00...11.10 2nd pressure hPa : 780

Rack travel in m: 12.10...12.50

3rd pressure hPa : 1200

Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed rpm : 750 Del.quantity cm3/: 174.5...179.5 1000 s: (172.0...182.0)

Aneroid pressure h: -

rpm : 800 Speed

Del.quantity cm3/: 117.5...121.5 1000 s: (114.5...124.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 125.0...145.0 1000 s: (120.0...150.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...25.0) Spread cm3: 4.50

1000 s: (7,50)

Remarks:

: JOHN DEERE # RE32035

Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 y Edition : 30.09.88 Replaces : 15.6.88 Test oil : ISO-4113 Combination no. : 0 402 076 723 Injection pump Pump designation : PES6P120A720RS3203 EP type number : 0 412 026 728 Governor Governor design. : RSV400...1100P2A534-Governer no. : 0 421 833 276 Customer-spec. information Customer : JOHN DEERE : 6466 AF-050 Engine : 180.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38 . . . 42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 015 Outside diameter

: 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

: 3.55...3.65 : (3.50...3.70) Rack travel in mm: 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1100 Rack travel in mm : 11.80...11.90 Del.quantity cm3/: 15.0...15.2 100 s: (14.7...15.4) Spread cm3 : 0.4100 s: (0.7) rpm : 400.0 2nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 1.7...2.2 100 s: (1.5...2.5) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed Aneroid pressure h: 1200 : 150.0...152.0 Del.quantity 1000 : (147.5...154.5) cm3 : 4.00 Spread 1000 : (7.50) RATED SPEED 1st version Control lever position degrees: 40...48

Prestroke mm

x Wall thickness

x Length mm

Testing:

1st rack travel in: 10.80

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed rpm : 1200...1210

4th rack travel in: 1350

rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 400 Rack travel in mm : 4.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 400 Speed

Rack travel in mm : 4.80...5.00 Rack travel in mm : 2.00

rpm : 540...600 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.80...11.90

2nd speed rpm : 700

Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 1200

Rack travel mm : 12.60...12.80

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.40...10.60

2nd pressure hPa : 720

Rack travel in m: 11.00...11.10

3rd pressure hPa : 895

Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 700 Del.quantity cm3/ : 173.5...178.5

1000 s: (171.0...181.0)

Aneroid pressure h: -

Speed rpm : 800

GC6

Del.quantity cm3/: 120.0...124.0

1000 s: (117.0...127.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 125.0...145.0 1000 s: (120.0...150.0) Rack travel in mm: 20.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 17.5...22.5

1000 s: (15.0...25.0)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32033

Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : MB 11,7 e 1 Edition : 18.10.88 Replaces : 7.1.88 Test oil : ISO-4113

Combination no. : 0 402 076 724

Injection pump

Pump designation : PES6P110A820LS3131-1

EP type number : 0 412 016 717

Governor

Governor design. : RSV350...750PDA536

Governer no. : 0 421 833 279

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : 0M447

1st version kW : 129.0 : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.30...4.40 Prestroke mm : (4.25...4.45)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm : 700 1st speed

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 14.5...14.7

100 s: (14.2...14.9)

Spread cm3 : 0.4

100 s: (0.8)

rpm : 350.0

2nd speed Rack travel in mm: 6.9...7.1 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.4100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 145.0...147.0 Del.quantity

1000 : (142.5...149.5)

: 4.00 cm3 Spread 1000 : (8.00)

RATED SPEED

1st version Control lever

position degrees: 24...32

Testing:

1st rack travel in: 11.20

Speed rpm: 750...755
2nd rack travel in: 4.00
Speed rpm: 775...788
4th rack travel in: 900

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm: 350 Rack travel in mm: 7.0

Testing:

Speed rpm: 100
Minimum rack trave: 15.00
Speed rpm: 350
Rack travel in mm: 6.90...7.10
Rack travel in mm: 2.00
Speed rpm: 360...400

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20 Speed rpm : 740...750

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Observe VDT-I-420/120 APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : DEE 10.1 f Phasing : 0-60-120-180-240-300 Edition : 30.09.88 Replaces Tolerance + - 0 : 15.6.88 : 0.50 (0.75) Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 402 076 726 BASIC SETTING Injection pump Pump designation : PES6P110A720RS3209 1st speed rpm: 1050 EP type number : 0 412 016 722 Governor Rack travel in mm : 11.20...11.30 Governor design. : RSV400...1050P0A537 : 0 421 833 287 Governer no. Del.quantity cm3/ : 16.7...16.9 Customer-spec. information 100 s: (16.5...17.2) Customer : JOHN DEERE Spread cm3 : 0.4Engine : 6619 AT 06 100 s: (0.7) 1st version kW : 172.0 rpm : 400.0 Rated speed : 2100 2nd speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 1.6...2.1 TEST BENCH REQUIREMENTS 100 s: (1.3...2.3) Test oil cm3 : 0.4Spread inlet temp. °C : 38...42 100 s: (0.7) Overflow valve GUIDE SLEEVE POSITION : 1 457 413 010 Control-lever position Degree: -3 rpm : 800 Inlet press., bar: 1.50 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 assembly Governor spring pre-tension Click setting x :? Opening : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar 1st version Test lines : 1 680 750 015 rpm : 1050 Speed : 167.5...169.5 Del.quantity Outside diameter 1000 : (165.0...172.0) x Wall thickness cm3 : 4.00 Spread 1000 : (7.50) x Length mm : 6.00x3.00x600 (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever position degrees: 39...47 BEGINNING OF DELIVERY Test pressure, bar: 27...29 Testing: 1st rack travel in: 10.20

Speed rpm : 1090...1100

rpm : 1150...1160

2nd rack travel in: 4.00

Speed

Prestroke mm

Rack travel in mm: 10.50

: 3.45...3.55

: (3.40...3.60)

3rd rack travel in: 4.00

rpm : 1160...1190 Speed

4th rack travel in: 1250 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 19...27

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 400

Rack travel in mm : 5.00...5.20

Rack travel in mm : 2.00

Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.20...11.30 2nd speed rpm : 700

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed rpm

Del.quantity cm3/: 171.5...176.5 1000 s: (169.0...179.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

: 1090...1100 Speed rpm

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.00...5.20

Del.quantity cm3/: 16.0...21.0

1000 s: (13.5...23.5) cm3 : 4.50

Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE33898

Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer. Start-of-delivery mark at 140 angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

Note remarks

: DEE 7,7 b Test sheet : 30.09.88 Edition Replaces : 15.6.88 Test oil : ISO-4113

Combination no. : 0 402 076 727

Injection pump

Pump designation : PES6P120A720RS3203

EP type number : 0 412 026 728

Governor

Governor design. : RSV400...1100P2A534-

: 0 421 833 290 Governer no.

Customer-spec. information

: JOHN DEERE Customer

Engine : 6076AF

1st version kW : 160.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x3.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 13.4...13.6

100 s: (13.1...13.8)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 400.0 2nd speed Rack travel in mm : 4.8...5.0 Del.quantity cm3/: 1.7...2.2

100 s: (1.5...2.5)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 900

Del.quantity : 134.0...138.5)

cm3 : 4.00 Spread

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.10

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1200...1210

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

Speed rpm: 400

Rack travel in mm : 4.80...5.00

Rack travel in mm : 2.00

rpm : 540...600 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.10...11.20

2nd speed rpm : 700

Rack travel in m: 12.40...12.60

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed `

Pressure hPa : -

Rack travel mm : 10.50...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : 470

Rack travel in m: 11.20...11.30

2nd pressure hPa : 605

Rack travel in m: 11.80...12.20

3rd pressure hPa : 900

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 700 Speed

Del.quantity cm3/: 165.5...170.5

1000 s: (163.0...173.0)

Aneroid pressure h: -

Speed rpm : 800

Del.quantity cm3/: 122.0...126.0

1000 s: (121.0...131.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 125.0...145.0 1000 s: (120.0...150.0)

Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 4.80...5.00

Del.quantity cm3/: 17.5...22.5

1000 s: (15.0...25.0)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32034

Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DEE 7.7 c Test sheet : 30.09.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 076 728 Injection pump Pump designation : PES6P120A720RS3203 EP type number : 0 412 026 728 Governor Governor design. : RSV425...1050P2A489-: 0 421 833 291 Governer no. Customer-spec. information Customer : JOHN DEERE : 6076 HRW01 Engine 1st version kW : 175.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening. pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 015

Outside diameter x Wall thickness : 6.00x3.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ Test pressure, bar: 27...29

BEGINNING OF DELIVERY

: 3.55...3.65 Prestroke mm : (3.50...3.70)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 16.0...16.2

100 s: (15.7...16.4)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 425.0 2nd speed Rack travel in mm : 4.8...5.0 Del.quantity cm3/: 1.7...2.2

100 s: (1.5...2.5)

cm3 : 0.4Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 1200

: 160.0...162.0 1000 : (157.5...164.5) Del.quantity

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.20

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1160...1170 Speed

4th rack travel in: 1250

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 425 Rack travel in mm : 4.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 425 Speed

Rack travel in mm : 4.80...5.00

Rack travel in mm : 2.00

rpm : 570...630 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.20...12.30

2nd speed rpm : 600 Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 1200 Pressure

Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 12.10...12.30

2nd pressure hPa : 725

Rack travel in m: 12.50...12.60

3rd pressure hPa : 815

Rack travel in m: 12.90...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600

Del.quantity cm3/: 191.0...196.0 1000 s: (188.5...198.5)

Aneroid pressure h: -

rpm : 800 Speed

Del.quantity cm3/: 157.0...161.0 1000 s: (154.0...164.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 125.0...145.0

1000 s: (120.0...150.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 425 Rack travel in mm : 4.80...5.00

Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...25.0)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32888

Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer. Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: DEE 10,1 9 Test sheet : 30.09.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 730

Injection pump

Pump designation : PES6P110A720RS3217

EP type number : 0 412 016 724

Governor

Governor design. : RSV400...1050P2A534-

: 0 421 833 304 Governer no.

Customer-spec. information

Customer : JOHN DEERE

: 6619AT07 Engine

1st version kW : 201.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55

: (3.40...3.60)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 18.6...18.8

100 s: (18.3...19.0)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 400.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 2.0...2.5

100 s: (1.8...2.8) cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 900

Del.quantity : 186.0...188.0 1000 : (183.5...190.5)

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 10.70

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1150...1160 4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Satting point w/out bumper spring

rpm : 400° Rack travel in mm: 4.8

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed : 590...650 Speed man

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.70...11.80 2nd speed rpm : 700

Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm Pressure hPa : 425

Rack travel mm : 11.20...11.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...10.80

2nd pressure hPa : 675

Rack travel in m: 12.00...12.40

3rd pressure hPa : 900

Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm_ : 700 Speed

Del.quantity cm3/: 201.5...206.5 1000 s: (199.0...209.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 158.0...162.0

1000 s: (155.0...165.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 165.0...185.0

1000 s: (160.0...190.0) Rack travel in mm: 20.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.20...5.40 Del.quantity cm3/ : 20.5...25.5

1000 s: (18.0...28.0)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE36078

Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer. Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DEE 10,1 g1 Test sheet : 30.09.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 076 731 Injection pump Pump designation : PES6P110A720RS3217 EP type number : 0 412 016 724 Governor Governor design. : RSV400...1050P2A534-: 0 421 833 305 Governer no. Customer-spec. information Customer : JOHN DEERE Engine : 6101 H 1st version kW : 224.0 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x3.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1050 Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 20.8...21.0 100 s: (20.5...21.2) Spread cm3 : 0.4100 s: (0.7) rpm : 400.0 2nd speed Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 2.0...2.5 100 s: (1.8...2.8) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050 Aneroid pressure h: 900 Del.quantity : 208.0...210.0 1000 : (205.5...212.5) cm3 : 4.00 Spread 1000 : (7.50) RATED SPEED 1st version Control lever position degrees: 39...47 Testing: 1st rack travel in: 11.60 rpm : 1090...1100 Speed

Rack travel in mm : 10.50

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 27...29

: 3.45...3.55

: (3.40...3.60)

2nd rack travel in: 4.00

rpm : 1155...1165 Speed

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.8

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed

rpm : 400

Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00

: 590...650 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.60...12.70

2nd speed rpm : 750

Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed LOW Pressure hPa : 900

Rack travel mm : 13.40...13.60

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.80...11.00

2nd pressure hPa : 310

Rack travel in m: 11.50...11.60

3rd pressure hPa : 650

Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 750 Speed rpm

Del.quantity cm3/: 219.5...224.5 1000 s: (217.0...227.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 161.5...165.5

1000 s: (158.5...168.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 165.0...185.0 1000 s: (160.0...190.0)

Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 20.5...25.5

1000 s: (18.0...28.0)

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE36881

Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer. Start-of-delivery mark 10.5° cam angle BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MAN 21.0 a : 01.07.88 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 640 811

Injection pump

Pump designation : PE12P120A520L87812

EP type number : 0 412 620 807

Governor

Governor design. : RQV250...1150PA860-1

Governer no. : 0 421 813 692

Customer-spec. information Customer : MAN

Engine : D2842LYE

1st version kW : 735.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 4.90...5.00 Prestroke mm

: (4.85...5.05)

Rack travel in mm : 9.00...12.00 Firing order : 12-1-5-9-8-3 -4-11-10-2-6-7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

: 345 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 28.9...29.1

100 s: (28.6...29.4)

cm3 : 0.5 Spread

100 s: (0.9)

2nd speed rpm : 250
Rack travel in mm : 7.30...7.50
Del.quantity cm3/ : 52.0...60.0 *

100 s: (-)

3rd speed rpm : 500 Rack travel in mm: < 7.50 Del.quantity cm3/: - **

100 s: (-)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350 travel mm : 2.00...2.40

rpm : 900 2nd speed

travel mm : 6.70...7.10

rpm : 1150 3rd speed

: 8.50...8.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1
Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 1300 Del.quantity : 289.0...291.0 1000 : (286.0...294.0) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 63...71 Testing: 1st rack travel in: 12.20 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 rpm : 1345...1375 Speed 4th rack travel in: 1500 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 8..16 Testing:

Speed rpm: 100
Minimum rack trave: 8.90
Speed rpm: 250
Rack travel in mm: 7.30...7.50
Rack travel in mm: 2.00
Speed rpm: 405...465

Aneroid/Altitude Compensator Test

1st version Setting Speed rpm : 500 Pressure hPa : 1300 Rack travel mm : 13.20

Rack travel mm : 13.20...13.30

Measurement Speed 1/min: 500 1st pressure hPa: -

Rack travel in m: 8.80...9.00 2nd pressure hPa : 270 Rack travel in m: 9.20...9.30 3rd pressure hPa : 790

Rack travel in m: 11.40...11.80

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: -

G20

Speed rpm : 500 Del.quantity cm3/ : 146.0...148.0 1000 s: (143.0...151.0)

Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.20 Speed rpm : 1190...1200

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 500 Rack travel in mm : <8.00 Del.quantity cm3/ : <50.0 1000 s: (-)

Remarks:

* applies to cylinders 4, 5, 6, 8, 10 and 12
** applies for cylinders 1, 2, 3, 7, 9 and 11

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 22,0 b Edition : 27.10.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 640 812

Injection pump

Pump designation : PE12P12OA520LS7820

EP type number : 0 412 620 814

Governor

Governor design. : RQV350...1150PA870-4 Governer no. : 0 421 813 717

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 444 LA

: 736.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50

: (4.35...4.55)

Rack travel in mm : 19.00...21.00

Firing order : 12- 1- 5- 9- 8-- 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

Tolerance + - D : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 31.0...31.2

100 s: (30.7...31.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 5.0...6.1 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.10...2.30 2nd speed rpm : 700

travel mm

: 3.90...4.20

3rd speed rpm : 1190

: 8.00...8.50 travel mm

4th speed rpm: 1220

travel mm : 9.70...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1250 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1800

Del.quantity : 310.0...312.0 1000 : (307.0...315.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 13.30

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1270...1300 Speed

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 10...18

Testing:

rpm : 200 Speed Minimum rack trave: 6.60

rpm : 350

Rack travel in mm : 5.00...5.30

CONSTANT REGULATION

rpm : 350...600 Speed

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rom

Pressure hPa : -

Rack travel mm : 6.60...6.90

Measurement

1/min : 500 Speed

1st pressure hPa : 400

Rack travel in m: 8.00...8.10

2nd pressure hPa : 1200

Rack travel in m: 12.30...12.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800

rpm : 750 Speed

Del.quantity cm3/: 310.0...314.0 1000 s: (307.0...317.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: 1800 rpm : 1150 Speed

Del.quantity cm3/: 240.0...243.0 * 1000 s: (237.0...246.0) Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 94.0...96.0

1000 s: (91.0...99.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.30

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 330.0...350.0 1000 s: (326.0...354.0)

Remarks:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SCA 11,0 u Edition : 02.09.88 Replaces : 8.85 Test oil : ISO-4113 Combination no. : 0 402 646 801 Injection pump Pump designation : PE6P120A720RS7001 EP type number : 0 412 626 800 Governor Governor design. : RQV200...1000PA539 Governer no. : 0 421 813 269 Customer-spec. information Customer : SCANIA Engine : DS11 15 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0.8 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 Date of mfg.

> : 5.00...5.10 : (4.95...5.15)

Date of mfg. : <052 Prestroke mm : 4.40...4.50 : (4.35...4.55) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 13.20...13.30 Del.quantity cm3/: 19.9...20.1 100 s: (19.6...20.4) Spread cm3 : 0.6 100 s: (0.9) 2nd speed rpm : 225.0 Rack travel in mm: 4.6...4.8 Del.quantity cm3/: 1.3...1.7 100 s: (-) cm3 : 0.3Spread 100 s: (0.6) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 225 : 1.20...1.60 travel mm rpm : 350 2nd speed : 2.40...3.00 travel mm rpm : 650 3rd speed : 4.50...5.10 travel mm rpm : 1045 4th speed travel mm : 8.40...8.60 5th speed rpm : 1165 : 10.00...10.40 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1040 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

Rack travel in mm : 9.00...12.00

Prestroke mm

Speed rpm : 700 Aneroid pressure h: 900 1000 : (196.0...201.0) Del.quantity cm3 : 6.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 12.20 Speed rpm : 1040...1050 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 5...13 Testing: rpm : 100 Speed Minimum rack trave: 5.90 rpm : 225 Speed Rack travel in mm : 4.40...4.60 Rack travel in mm: 2.00 Speed rpm: 310...370 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 900 Speed Pressure Rack travel mm : 13.20...13.30 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 11.60...11.70 2nd pressure hPa : 420 Rack travel in m: 12.80...12.90 3rd pressure hPa : 290 Rack travel in m: 11.90...12.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 1000 Speed

Del.quantity cm3/: 191.0...199.0 1000 s: (191.0...203.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 160.0...164.0 1000 s: (158.0...166.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 1040...1050 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 240.0...290.0 1000 s: (-) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 225
Rack travel in mm : 4.40...4.60 Remarks: Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm ADDITIONAL INFORMATION Check and set without ROBO diaphragam For comb. With letter index see VDT-I-400/116. For sealing see VDT-I-400/117. Scania test specifications taken over on Aug. 18, 1983 Start of delivery - engine: 170 before Firing sequence of engine:

1-5-3-6-2-4. G25

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : \$CA 11,0 u1 Edition : 01.09.88 Replaces : 23.9.86 Test oil : ISO-4113 Combination no. : 0 402 646 802 Injection pump Pump designation : PE6P120A720RS7001 EP type number : 0 412 626 800 Governor Governor design. : RQV200...1050PA539 Governer no. : 0 421 813 290 Customer-spec. information : SAAB - SCANIA Customer : DS 11 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm: 13.20...13.30

Del.quantity cm3/: 19.9...20.1

100 s: (19.6...20.4)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 225.0 2nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 1.3...1.7 100 s: (-)

Spread cm3 : 0.3100 s: (0.6)

(B) Setting of injection pump With governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.30...1.40

2nd speed rpm : 270 travel mm

: 1.80...2.10 3rd speed rpm : 340

travel mm : 2.40...2.80 4th speed rpm : 1090

: 8.30...8.50 travel mm

5th speed rpm : 1200

: 9.70...10.00 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1110 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700 Aneroid pressure h: 900

Del.quantity : 199.0...201.0 1000 : (196.0...204.0)

Spread : 6.00 cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 12.20

rpm : 1090...1100 Speed

2nd rack travel in: 4.90

Speed rpm : 1190...1220

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 5...13

Testing:

rpm : 100 Speed Minimum rack trave: 5.90

rpm : 225 Speed

Rack travel in mm : 4.40...4.60

Rack travel in mm : 2.00 Speed rpm : 310...370

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 900 Pressure

Rack travel mm : 13.20...13.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 11.60...11.70

2nd pressure hPa : 420

Rack travel in m: 12.80...12.90

3rd pressure hPa : 290

Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 1050

Del.quantity cm3/ : 193.0...201.0

1000 s: (191.0...203.0)

Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 160.0...164.0

1000 s: (158.0...166.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 240.0...290.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 13.0...17.0

1000 s: (-) cm3 : 3.00 Spread

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. With letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over

on Aug. 18, 1983

Engine model DS 11 - 170 before top

dead center.

Firing sequence of engine: 1-5-3-6-2-4.

: 4.40...4.50 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (4.35...4.55) Note remarks Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Test sheet : SCA 11,0 V Edition : 01.09.88 Replaces : 9.3.87 : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 0 402 646 803 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PE6P120A720RS7004 EP type number : 0 412 626 801 BASIC SETTING Governor Governor design. : RQ750PA528 1st speed rpm : 700 Governer no. : 0 421 801 126 Rack travel in mm : 12.80...12.90 Customer-spec. information : SAAB-SCANIA Customer Del.quantity cm3/: 20.9...21.1 TEST BENCH REQUIREMENTS 100 s: (20.6...21.4) Test oil cm3 : 0.6Spread inlet temp. °C : 38...42 100 s: (0.9) Overflow valve FULL LOAD DELIV. AT FULL LOAD STOP : 1 417 413 025 Inlet press., bar: 1.50 1st version rpm : 700 Speed Del.quantity : 209.0...214.0) Test nozzle holder : 1 688 901 019 assembly cm3 : 6.00Spread 1000 : (9.00) Opening : 207...210 pressure, bar RATED SPEED Orifice plate diameter mm : 0,8 1st version Testing: Test lines : 1 680 750 015 1st rack travel in: 11.80 rpm : 750...755 Speed Outside diameter 2nd rack travel in: 4.00 Speed rpm : 784...797 x Wall thickness x Length mm : 6.00x1.50x600 4th rack travel in: 850 rpm : 0.00...1.00 Speed (A) Injection pump setting values LOW IDLE 1 Insp. values in parentheses Set equal delivery quant. per values Testing: rpm : 100 Speed BEGINNING OF DELIVERY Rack travel in mm: 2.00 Test pressure, bar: 25...27 Date of mfg. STARTING FUEL DELIVERY Prestroke mm : 5.00...5.10 : (4.95...5.15)

rpm : 100

Speed

H01

Rack travel in mm : 9.00...12.00

Date of mfg. : <052

Del.quantity cm3/: 240.0...290.0 1000 s: (-) Rack travel in mm: 20.00...21.00

HIGH IDLE

1st version

Rack travel in mm : 4.90...5.10

Spread cm3 : 4.00

1000 s: (7.00)

Remarks:

: DS11 43, 44, 45 : DSI11 42, 45

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on Aug. 18, 1983 Start of delivery - engine: DS 11 - 17 before TDC DSI 11 - 16 before TDC Firing sequence of engine: 1-5-3-6-2-4.

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 11.0 t : 05.08.88 Test sheet Edition Replaces : 13.6.88 Test oil : ISO-4113

Combination no. : 0 402 646 838

Injection pump

Pump designation : PE6P120A320LS7808 EP type number : 0 412 626 816

Governor

Governor design. : RQ300/1050PA762-4

: 0 421 801 390 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M441 LA Engine

: 240.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

-360

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.7...6.0

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 900

Del.quantity : 214.0...216.0 1000 : (211.0...219.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0

H03

Testing: 1st rack travel in: 13.70 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring грт : 300 Rack travel in mm : 5.8 Testing: Speed rpm : 200 Minimum rack trave: 7.70 Speed rpm : 300 Rack travel in mm : 5.70...6.00 Rack travel in mm : 2.00 rpm : 380...420 Speed TORQUE CONTROL Dimension a mm : 0.30 2nd speed rpm : 1050 Rack travel in m: 14.70...14.90 3rd speed rpm : 800 Rack travel in m: 15.10...15.30 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 hPa : 900 Pressure Rack travel mm : 13.90...14.10 Measurement 1/min : 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 12.70...12.90 3rd pressure hPa : 1050 Rack travel in m: 14.00...14.10 4th pressure hPa : 1150 Rack travel in m: 14.40...14.60 START CUT-OUT 1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1350

Speed rpm : 1050 Del.quantity cm3/ : 236.0...239.0 1000 s: (233.0...242.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1350 Speed rpm : 800 Del.quantity cm3/: 243.0...247.0 1000 s: (240.0...250.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.70 Speed rpm : 1095...1110

Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0 1000 s: (201.0...229.0)

STARTING FUEL DELIVERY

Remarks:

H04

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : WAU 18,0 a : 0-60-120-180-240-300 Phasing : 05.08.88 Edition Replaces Tolerance + ~ 0 : 0.50 (0.75) : ISO-4113 Test oil Time to cyl. no. Combination no. : 0 402 646 862 BASIC SETTING Injection pump Pump designation : PE6P130A720RS7112 1st speed rpm: 900 EP type number : 0 412 636 802 Rack travel in mm : 13.30...13.40 Governor Governor design. : RQ350/925PA892 Governer no. : 0 421 801 441 Del.quantity cm3/: 29.9...30.2 Customer-spec. information 100 s: (29.5...30.5) Customer : WAUKESHA Spread cm3 : 0.6Engine : F1800S/DSI 100 s: (1.0) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/: 2.4...3.0 Test oil inlet temp. OC : 38...42 100 s: (2.0...3.4) Overflow valve cm3 : 1.0 Spread : 1 417 413 025 100 s: (1.4) Inlet press., bar : 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -1 : 1 688 901 019 assembly rpm : 600 Speed Rack travel in mm : 15.20...17.80 Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version diameter mm rpm : 900 : 0,8 Speed : 299.0...302.0 Del.quantity 1000 : (295.5...305.5) cm3 Test lines : 1 680 750 067 : 6.00 Spread 1000 : (10.00) Outside diameter x Wall thickness RATED SPEED : 6.00x1.50x1000 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: Set equal delivery quant. rpm : 600 per values __ Rack travel in mm: 16.5 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 12.30

rpm : 970...985

rpm : 1040...1070

Speed

Speed

2nd rack travel in: 4.00

4th rack travel in: 1150

H05

Prestroke mm

: 4.40...4.50

Rack travel in mm : 9.00...12.00

: (4.35...4.55)

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.3

Testing:

rpm : 100 Speed Minimum rack trave: 6.80 Speed rpm: 350
Rack travel in mm: 5.20...5.40
Rack travel in mm: 2.00

Speed rpm : 440...480

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.30 Speed rpm : 970...985

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

rpm : 100 Speed

LOW IDLE

Remarks:

APPLICATION Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 : STE 9,7 d 2 Test sheet : 24.06.88 Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 402 646 867 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PE6P12OA72ORS7118-1 EP type number : 0 412 626 825 BASIC SETTING Governor Governor design. : RQV250..1100PA785-2 1st speed rpm : 1100 Governer no. : 0 421 813 710 Rack travel in mm: 12.70...12.80 Customer-spec. information Customer : STEYR Del.quantity cm3/: 18.1...18.3 : WD615.98 Engine 100 s: (17.8...18.6) 1st version kW : 228.0 cm3 : 0.5 Spread Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 250.0 Rack travel in mm : 4.8...5.0 Test oil inlet temp. OC : 38...42 Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.4) cm3 : 0.8 Overflow valve Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 250 1st speed Opening : 1.20...1.30 travet mm : 207...210 rpm : 350 pressure, bar 2nd speed : 1.80...2.20 travel mm Orifice plate 3rd speed rpm : 410 diameter mm travel mm : 0,8 : 2.30...2.70 rpm : 1150 4th speed travel mm : 8.40...8.60 Test lines : 1 680 750 067 5th speed rpm : 1240 : 9.50...9.80 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION Control-lever position x Length mm : 6.00x1.50x1000 Degree: -1 (A) Injection pump setting values rpm : 1150 Speed Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. per values ____ FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 181.0...183.0

1000 : (178.0...186.0)

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 44...52

Testing:

1st rack travel in: 11.70

Speed rpm : 1140...1150

2nd rack travel in: 4.00

rpm : 1225...1255 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 10...18

Testing:

Speed rpm : 100

Minimum rack trave: 6.30

Speed rpm : 250 Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 275...375 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

pm : 500 hPa : 1200 Speed rom Pressure

Rack travel mm : 12.70...12.80

Measurement

1/min : 500 Speed

1st pressure hPa : ~

Rack travel in m: 10.30...10.40

2nd pressure hPa : 570
Rack travel in m: 12.10...12.20
3rd pressure hPa : 360
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm: 700

Del.quantity cm3/: 190.0...196.0 1000 s: (187.0...199.0)

H08

Aneroid pressure h: rpm : 700 Speed

Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 225.0...265.0

1000 s: (221.0...269.0)

Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

APPLICATION

Special-purpose vehicle

: 1- 2- 7- 3- 4- 5-BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : SCA 14,2 a3 : 23.09.88 Edition Phasing : 0-45-90-135-180-225-Replaces : 21.5.87 270-315 Tolerance + - 0 : ISO-4113 : 0.50 (0.75) Test oil : 0 402 648 801 Combination no. Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE8P120A920/4LS7002 EP type number : 0 412 628 800 1st speed rpm : 700 Governor Governor design. : RQV250...1000PA547 Rack travel in mm : 13.20...13.30 : 0 421 813 270 Governer no. Del.quantity cm3/: 18.7...18.9 Customer-spec. information Customer : SCANIA 100 s: (18.4...19.2) Spread Engine : DS14 06 cm3 : 0.6TEST BENCH REQUIREMENTS 100 s: (0.9) rpm : 225.0 Test oil 2nd speed inlet temp. OC : 38...42 Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.0...1.4 Overflow valve 100 s: (-) : 1 417 413 025 Spread cm3 : 0.3100 s: (0.6) Inlet press., bar: 1.50 (B) Setting of injection pump Test nozzle holder with governor : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL Opening rpm : 225 1st speed : 207...210 : 1.20...1.60 pressure, bar travel mm rpm : 350 2nd speed Orifice plate : 2.40...3.00 travel mm diameter mm : 0,8 3rd speed rpm : 650 : 4.50...5.10 travel mm 4th speed rpm: 1045 Test lines : 1 680 750 015 : 8.40...8.60 travel mm 5th speed rpm: 1165 Outside diameter : 10.00...10.40 travel mm x Wall thickness : 6.00x1.50x600 GUIDE SLEEVE POSITION x Length mm Control-lever position (A) Injection pump setting values Degree: -1 rpm : 1040 Insp. values in parentheses Speed Rack travel in mm : 15.20...17.80 Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY Test pressure, bar: 25...27 1st version rpm : 700 Speed Prestroke mm : 5.00...5.10 Aneroid pressure h: 900 Del.quantity : 187.0...189.0 1000 : (184.0...192.0) : (4.95...5.15) Rack travel in mm : 9.00...12.00

H09

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 12.20

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1140...1170

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 5...13 Setting point w/out bumper spring

Speed rpm : 225 Rack travel in mm: 4.5

Testing:

rpm : 100 Speed Minimum rack trave: 5.90

rpm : 225 Speed

Rack travel in mm : 4.40...4.60

Rack travel in mm : 2.00 Speed rpm : 310...370

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 900 Pressure

Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.30...11.40

2nd pressure hPa : 350 Rack travel in m: 12.80...12.90

3rd pressure hPa : 230

Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1000

Del.quantity cm3/: 184.0...192.0 1000 s: (182.0...194.0)

H10

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 137.0...141.0 1000 s: (135.0...143.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...290.0 1000 s: (-)

Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 225

Rack travel in mm : 4.40...4.60

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. With letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on Aug. 19, 1983 Engine start of delivery: 18° BTDC

Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : SCA 14,2 b : 01.09.88 Edition Replaces : 9.84 Test oil : ISO-4113

Combination no. : 0 402 648 804

Injection pump

Pump designation : PE8P120A920/4LS7003

EP type number : 0 412 628 801

Governor

Governor design. : RQ900PA528 : 0 421 801 127 Governer no.

Customer-spec. information

Customer : SAAB-SCANIA

Engine : DS14 41_DSI14 42

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 7- 3- 4- 5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - D : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 18.6...18.8

100 s: (18.3...19.1)

Spread cm3 : 0.6

100 s: (0.9)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

: 186.0...188.0 Del.quantity

1000 : (183.0...191.0)

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 11.80

Speed rpm : 900...905

2nd rack travel in: 4.00

rpm : 941...955 Speed

4th rack travel in: 1000

rpm : 0.00...1.00 Speed

LOW IDLE 1

Testing:

Speed rom : 100 Rack travel in mm: 2.00

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 240.0...290.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

H12

HIGH IDLE

1st version

Rack travel in mm : 4.90...5.10

cm3 : 4.00 1000 s: (7.00) Spread

Remarks:

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on 1986-06-04 Start of delivery - engine: DS 14 - 18° before TDC DSI 14 - 17° before TDC Engine firing sequence: 1-5-4-2-6-3-7-8

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a 4 : 27.10.88 Edition : 29.4.88 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 817

Injection pump

Pump designation : PE8P12OA320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQ300/1050PA762-5 Governer no. : 0 421 801 399

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 A Engine

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5firing order

: 0-45-90-135-180-225-Phasing

270-315 Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.2...6.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 500 Speed Aneroid pressure h: 650

: 203.0...205.0 1000 : (200.0...208.0) Del.quantity

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 11.70 1st version rpm : 1095...1110 Speed Aneroid pressure h: 1050 2nd rack travel in: 4.00 rpm : 1050 Speed Speed rpm : 1170...1200 Del.quantity cm3/: 180.0...183.0 4th rack travel in: 1300 1000 s: (177.0...186.0) cm3 : 8.00Speed rpm : 0.00...1.50 Spread 1000 s: (12.0) LOW IDLE 1 Aneroid pressure h: 1050 Setting point w/out bumper spring Speed rpm Del.quantity cm3/: 215.0...219.0 rpm : 300 Rack travel in mm: 6.3 1000 s: (212.0...222.0) cm3 : 8.00 Spread Testing: 1000 s: (12.0) rpm : 200 Aneroid pressure h: 1050 Speed Speed rpm: 850 Del.quantity cm3/: 206.0...210.0 1000 s: (203.0...213.0) Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.20...6.40 Rack travel in mm : 2.00 cm3 : 8.00 Spread rpm : 380...420 Speed 1000 s: (12.0) Aneroid pressure h: -TORQUE CONTROL rpm : 500 Speed Dimension a mm Del.quantity cm3/: 149.0...151.0 : 0.75 2nd speed rpm : 1050 1000 s: (146.0...154.0) Rack travel in m: 12.70...12.90 cm3 : 8.00 Spread 3rd speed rpm : 850 1000 s: (12.0) Rack travel in m: 13.70...14.00 4th speed rpm : 700 Rack travel in m: 14.30...14.50 BREAKAWAY Aneroid/Altitude 1st version Compensator Test 1mm rack travel less than full load rack tr: 11.70 1st version rpm : 1095...1110 Speed Setting Speed rom : 600 STARTING FUEL DELIVERY Pressure hPa : 650 Rack travel mm : 14.10...14.30 : 100 Speed rpm Del.quantity cm3/: 175.0...190.0 1000 s: (171.0...194.0) Measurement 1/min : 600 Speed 1st pressure hPa : 300 Remarks: Rack travel in m: 12.40...12.60 2nd pressure hPa : 400 Rack travel in m: 13.30...13.60 3rd pressure hPa : 850 Rack travel in m: 14.20...14.30 4th pressure hPa : 1050 Rack travel in m: 14.65...14.75 5th pressure hPa : -Rack travel in m: 11.50...11.80 START CUT-OUT 1/min : 220 (240) Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14.7 a 3
Edition : 12.08.88
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 402 648 818

Injection pump

Pump designation : PE8P120A320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQ300/950PA762-1 Governer no. : 0 421 801 304

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 LA

ist version kW : 298.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)
Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-

4- 1

Phasing : 0-45-90-135-180-225-

270-315 Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 14.20...14.40

Del.quantity cm3/ : 21.0...21.2

100 s: (20.7...21.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.2...2.0

100 s: (0.9...2.3)

Spread cm3 : 0.8 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 Speed rpm : 600

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 750

Del.quantity : 210.0...212.0

1000 : (207.0...215.0)

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0 Testing: 1st rack travel in: 13.00 rpm : 990...1010 Speed 2nd rack travel in: 4.00 rpm : 1060...1090 Speed 4th rack travel in: 1200 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Rack travel in mm: 5.9 Testing: Speed rpm : 100 Minimum rack trave: 7.50 rpm : 300 Speed Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 Speed rpm : 365...405 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 950 Rack travel in m: 14.00...14.20 2nd speed rpm : 925 Rack travel in m: 14.20...14.40 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 750 Rack travel mm : 14.20...14.40 Measurement Speed 1/min: 600 1st pressure hPa : 320 Rack travel in m: 11.80...12.00 2nd pressure hPa : 420 Rack travel in m: 13.40...13.60 3rd pressure hPa : 850 Rack travel in m: 14.30...14.40 4th pressure hPa : 1050 Rack travel in m: 14.60...14.80 5th pressure hPa : -Rack travel in m: 11.50...11.70 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS

H17

1st version Aneroid pressure h: 1050 Speed rpm : 950 Del.quantity cm3/ : 211.0...214.0 1000 s: (208.0...217.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1050 Speed rpm : 800 Del.quantity cm3/: 225.0...228.0 1000 s: (222.0...231.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 152.0...154.0 1000 s: (149.0...157.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 Speed rpm : 990...1010

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...195.0 1000 s: (176.0...199.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 14,7 a Edition : 12.08.88 Replaces : 8.85 Test oil : ISO-4113 Combination no. : 0 402 648 819 Injection pump Pump designation : PE8P120A320LS7801 EP type number : 0 412 628 806 Governor Governor design. : R0300/900PA762-2 Governer no. : 0 421 801 305 Customer-spec. information : DAIMLER-BENZ Customer Engine : 0M442 LA TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Over flow quantity min. 1/h: 100...120 Test nozzle holder assembly : 1 688 901 019 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0.8 Test lines : 1 680 750 067

Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-: 0-45-90-135-180-225-Phasing 270-315 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 8 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 13.00...13.10 Del.quantity cm3/ : 19.2...19.5 100 s: (18.9...19.8) Spread cm3 : 0.5100 s: (0.9) rpm : 300.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 1.2...2.0 100 s: (0.9...2.3) cm3 : 0.8 Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Aneroid pressure h: 750 Del.quantity : 192.0...195.0 1000 : (189.0...198.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Setting point: rpm : 600 Rack travel in mm : 20.0 Testing:

: 5.20...5.30

Prestroke mm

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

1st rack travel in: 12.10 rpm : 940...955 Speed 2nd rack travel in: 4.00

Speed rpm : 1020...1050 4th rack travel in: 1150 Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.0

Testing:

rpm : 100 Speed Minimum rack trave: 7.60

Speed rpm: 300
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 365...405

TORQUE CONTROL

Dimension a mm : 1.20

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 13.00...13.10

2nd speed rpm : 600

Rack travel in m: 14.20...15.40

3rd speed rpm : 850 Rack travel in m: 13.50...13.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : -

Rack travel mm : 11.20...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : 300

Rack travel in m: 11.70...11.80

2nd pressure hPa : 450

Rack travel in m: 13.20...13.40

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750 Speed rpm: 600

Del.quantity cm3/: 209.0...211.0

1000 s: (206.0...214.0)

H19

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm: 500
Del.quantity cm3/: 153.0...155.0
1000 s: (150.0...158.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 940...955

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 175.0...190.0 1000 s: (171.0...194.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a 5
Edition : 27.10.88
Replaces : 11.3.88
Test oil : ISO-4113

Combination no. : 0 402 648 825

Injection pump

Pump designation : PE8P120A320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQV300..1050PA797-3

Governer no. : 0 421 813 627

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 A

1st version kW : 260.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)
Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-

4- 1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

Spread cm3 : 0.5

100 s: (0.9)

100 5. (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 6.2...6.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

Spread cm3 : 0.6 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 1075

travel mm : 7.40...7.60

4th speed rpm : 1100

travel mm : 8.00...8.20

5th speed rpm : 1150

travel mm : 9.00...9.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

2nd pressure hPa : 400 1st version Rack travel in m: 13.40...13.70 rpm : 500 Speed 3rd pressure hPa : 850 Aneroid pressure h: 650 Rack travel in m: 14.20...14.30 203.0...205.0 1000 : (200.0...208.0) cm3 : 5.00 1000 : (9.00) 4th pressure hPa : 1050 Rack travel in m: 14.60...14.80 Del. quantity Spread 5th pressure hPa : -Rack travel in m: 11.50...11.80 RATED SPEED START CUT-OUT 1st version Speed 1/min : 220 (240) Control lever position degrees: 54...62 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 11.70 1st version rpm : 1090...1100 Speed Ameroid pressure h: 1050 Speed rpm : 1050 2nd rack travel in: 4.00 Speed rpm : 1155...1185 Del.quantity cm3/: 180.0...183.0 1000 s: (177.0...186.0) 4th rack travel in: 1300 rpm : 0.00...1.00 cm3 : 8.00 Speed Spread 1000 s: (12.0) Aneroid pressure h: 1050 LOW IDLE 1 Speed rpm : 700 Del.quantity cm3/ : 215.0...219.0 1000 s: (212.0...222.0) Control lever position degrees: 17...25 Testing: cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1050 Speed rpm : 100 Minimum rack trave: 7.70 rpm : 300 Speed rpm : 850 Del.quantity cm3/: 206.0...210.0 Speed Rack travel in mm : 6.20...6.40 1000 s: (203.0...213.0) CONSTANT REGULATION cm3 : 8.00 Spread Speed rpm : 300...450 1000 s: (12.0) Aneroid pressure h: -TORQUE CONTROL Speed rpm : 500 Del.quantity cm3/: 149.0...151.0 Dimension a mm : 1.40 2nd speed rpm : 1050 1000 s: (146.0...154.0) Rack travel in m: 12.70...12.90 cm3 : 8.00 Spread 3rd speed rpm : 850 1000 s: (12.0) Rack travel in m: 13.70...14.00 4th speed rpm : 700 Rack travel in m: 14.30...14.50 BREAKAWAY Aneroid/Altitude 1st version Compensator Test 1mm rack travel less than full load rack tr: 11.70 1st version rpm : 1090...1100 Speed Setting Speed : 600 STARTING FUEL DELIVERY rom Pressure hPa : 650 Rack travel mm : 14.10...14.30 Speed rpm : 100 Del.quantity cm3/ : 175.0...190.0 Measurement Speed 1/min : 600 1000 s: (171.0...194.0) 1st pressure hPa : 300 Remarks: Rack travel in m: 12.40...12.60

Note remarks

Test sheet : MB 14,7 f Edition : 11.07.88 Replaces : 18.9.87 Test oil : ISO-4113

Combination no. : 0 402 648 832

Injection pump

Pump designation : PE8P120A320LS7810 EP type number : 0 412 628 819

Governor

Governor design. : RQ300/1050PA858 Governer no. : 0 421 801 398

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 LA Engine

: 368.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 19.50...21.00 : 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 23.9...24.1

100 s: (23.6...24.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm: 5.2...5.5 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19,20,...20,80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900

239.0...241.0 1000 : (236.0...244.0) cm3 : 5.00 Del.quantity

Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 20.0 Testing: 1st rack travel in: 14.10 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1145...1175 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.3 Testing: Speed rpm : 200 Minimum rack trave: 7.40 rpm : 300 Speed Rack travel in mm: 5.20...5.50
Rack travel in mm: 2.00
Speed rpm: 340...380 TORQUE CONTROL Dimension a mm : 0.35 2nd speed rpm : 1050 Rack travel in m: 15.10...15.30 3rd speed rpm : 800 Rack travel in m: 13.30...15.50 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 900 Rack travel mm : 14.30...14.50 Measurement 1/min : 600 Speed 1st pressure hPa : 320 Rack travel in m: 10.20...10.40 2nd pressure hPa : 620 Rack travel in m: 13.00...13.20 3rd pressure hPa : 1100 Rack travel in m: 14.40...14.50 4th pressure hPa : 1500 Rack travel in m: 15.30...15.50 5th pressure hPa : -Rack travel in m: 8.40...8.70 START CUT-OUT Speed 1/min : 220 (240)

1st version Aneroid pressure h: 1500 Speed rpm : 1050 Del.quantity cm3/ : 257.0...260.0 1000 s: (254.0...263.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1500 Speed rom : 800 Del.quantity cm3/: 265.0...269.0 1000 s: (262.0...272.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 133.0...135.0
1000 s: (130.0...138.0) Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.10 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

FUEL DELIVERY CHARACTERISTICS

Note remarks

: MB 14.7 i 1 : 01.07.88 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 846

Injection pump

Pump designation : PE8P120A320LS7815 EP type number : 0 412 628 827

Governor

Governor design. : RQV350..1050PA870-3

Governer no. : 0 421 813 700

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442LA

1st version kW : 368.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

4-1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm : 15.10...15.20

Del.quantity cm3/: 25.8...26.0

100 s: (25.5...26.3)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 5.2...5.7 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.90...2.10

2nd speed rpm: 700

: 4.10...4.50 travel mm

3rd speed rpm : 1100

travel mm : 7.60...8.00

4th speed rpm : 1200

travel mm : 9.50...9.90

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Rack travel in m: 13.10...13.30 Aneroid pressure h: 1500 Del.quantity : 258.0...260.0 3rd pressure hPa : 1260 Rack travel in m: 14.70...14.90 1000 : (255.0...263.0) 4th pressure hPa : 1400 cm3 : 5.00 Rack travel in m: 15.10...15.30 Spread 1000 : (9.00) 5th pressure hPa :-Rack travel in m: 8.80...9.10 RATED SPEED START CUT-OUT 1st version Control lever Speed 1/min: 270 (290) position degrees: 61...69 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 14.10 Speed rpm : 1090...1100 1st version 2nd rack travel in: 4.00 Aneroid pressure h: 950 rpm : 1190...1220 Speed : 600 Speed rpm 4th rack travel in: 1300 Del.quantity cm3/: 239.0...241.0 rpm : 0.00...1.00 1000 s: (236.0...244.0) Speed cm3 : 8.00 Spread LOW IDLE 1 1000 s: (12.0) Aneroid pressure h: 1500 Control lever position degrees: 8...16 : 800 Speed rpm Del.quantity cm3/: 266.0...269.0 Testing: 1000 s: (263.0...272.0) cm3 : 8.00 Speed rpm : 200 Spread Minimum rack trave: 7.70 1000 s: (12.0) Aneroid pressure h: 1500 rpm Rack travel in mm : 5.20...5.40 Speed rpm : 1050 Del.quantity cm3/: 194.0...196.0 CONSTANT REGULATION 1000 s: (191.0...199.0) rpm : 350...600 Speed cm3 : 8.00Spread 1000 s: (12.0) TORQUE CONTROL Aneroid pressure h: rpm : 500 Dimension a mm : 0.40 Speed Del.quantity cm3/: -1000 s: (-) Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 15.10...15.20 2nd speed rpm : 1000 Rack travel in m: 15.30...15.50 BREAKAWAY 3rd speed rpm : 930 Rack travel in m: 15.50...15.70 1st version 1mm rack travel less than Aneroid/Altitude Compensator Test full load rack tr: 14.10 Speed rpm : 1090...1100 1st version STARTING FUEL DELIVERY Setting Speed rpm : 600 Pressure hPa : 1000 Speed rpm : 100 Rack travel mm : 14.50...14.70 Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Measurement 1/min : 600 Speed Remarks: 1st pressure hPa : 330

Rack travel in m: 10.50...10.70

2nd pressure hPa : 600

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : WAU 24,0 a Edition : 05.08.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 648 847 Injection pump Pump designation : PE8P130A920/4RS7158 EP type number : 0 412 638 801 Governor Governor design. : RQV350...900PA760-1 Governer no. : 0 421 813 617 Customer-spec. information Customer : WAUKESHA : H24DS/DSI Engine TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening. : 207...210 pressure, bar Orifice plate : 0,8 diameter mm Test lines : 1 580 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 3.50...3.70 : (3.55...3.75)

Prestroke mm Rack travel in mm : 9.00...12.00

: 1- 4- 2- 6- 8- 5 - 7- 3 Firing order

Phasing : 0-45-090-135-180-225 -270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 36.8...37.1

100 s: (26.5...37.5)

Spread cm3 : 0.6

100 s: (1.0)

rpm : 350.0 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.5...2.1 100 s: (1.1...2.5)

Spread cm3 : 1.0 100 s: (1.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL rpm : 350 1st speed

travel mm : 1.50...1.80

2nd speed rpm : 700

: 5.30...5.70 travel mm 3rd speed rpm : 950

travel mm

: 8.40...8.60

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 950 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Del.quantity : 368.5...371.5 1000 : (265.0...375.0)

cm3 : 6.00

Spread 1000 : (10.00)

RATED SPEED

H27

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 12.80 Speed rpm : 940...950 2nd rack travel in: 4.00

Speed rpm : 1030...1060

4th rack travel in: 1150

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed rpm : 100 Minimum rack trave: 7.60 Speed rpm : 350 Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 350...500

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80 Speed грм : 940...950

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

APPLICATION Navy

Note remarks

Test sheet : WAU 24,0 a1 Edition : 05.08.88

Replaces :

Test oil : ISO-4113

Combination no. : 0 402 648 848

Injection pump

Pump designation : PE8P130A920/4RS7158

EP type number : 0 412 638 801

Governor

Governor design. : RQ350/925PA892 Governer no. : 0 421 801 441

Customer-spec. information Customer : WAUKESHA

Engine : H24DS/DSI

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70 : (3.55...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 2- 6- 8- 5

Phasing : 0-45-090-135-180-225

-270-315

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 36.8...37.1

100 s: (36.5...37.5)

Spread cm3 : 0.6

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2 Del.quantity cm3/: 1.5...2.1

100 s: (1.1...2.5)

100 s: (1.0)

Spread cm3 : 1.0 100 s: (1.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm: 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900

Del.quantity : 368.5...371.5

1000 : (365.0...375.0)

Spread cm3 : 6.00

1000 : (10,00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 16.0

Testing:

1st rack travel in: 12.80 Speed rpm: 970...985 2nd rack travel in: 4.00

Speed rpm : 1040...1070

J01

4th rack travel in: 1150 Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 7.60

Speed rpm: 350
Rack travel in mm: 6.00...6.20
Rack travel in mm: 2.00
Speed rpm: 360...400

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80 Speed rpm : 970...985

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 14,5 d Edition : 04.11.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 648 850 Injection pump Pump designation : PE8P120A520LS7818 EP type number : 0 412 628 830 Governor Governor design. : RQV250...1150PA860 Governer no. : 0 421 813 626 Customer-spec, information Customer : MAN : D2848LXE 40 Engine : 500.0 : 2300 1st version kW Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067

: 6.00x1.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 4.60...4.70 : (4.55...4.75) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 8- 7- 2- 6- 3- 5-4- 1 : 0-45-90-135-180-225-Phasing 270-315 Tolerance + - 0: 0.50 (0.75) Time to cyl. no. : 8 BASIC SETTING 1st speed rpm : 1150 Rack travel in mm : 13.50...13.60 Del.quantity cm3/: 28.9...29.1 100 s: (28.6...29.4) cm3 : 0.5 Spread 100 s: (0.9) rpm : 250 2nd speed Rack travel in mm : 7.30...7.50 Del.quantity cm3/: 52.0...60.0 * 100 s: (-)
3rd speed rpm : 500
Rack travel in mm : 8.20...8.40 Del.quantity cm3/: 12.5 ** 100 s: (-) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 1.00...1.20 travel mm 2nd speed rpm : 450 travel mm : 3.50...4.10 3rd speed rpm : 850 travel mm : 6.50...6.90 4th speed rpm : 1150 travel mm : 8.40. : 8.40...8.60 5th speed rpm : 1450 travel mm : 11.00...12.00 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1150

Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP

Outside diameter x Wall thickness

x Length mm

1st version

Speed rpm : 1150

Aneroid pressure h: 1600

Del.quantity : 285.0...294.0)

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 62...70

Testing:

1st rack travel in: 12.50

Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1360...1390 Speed

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed fom : 100 Minimum rack trave: 8.90

Speed rpm : 250 Rack travel in mm : 7.30...7.50

Rack travel in mm : 2.00

Speed rpm : 425...485

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm Pressure hPa : 1600

Rack travel mm : 13.50...13.60

Heasurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 8.90...9.10 2nd pressure hPa : 250

Rack travel in m: 9.30...9.40

3rd pressure hPa : 900

Rack travel in m: 11.90...12.20

START CUT-OUT

1/min : 200 (220) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 149.0...151.0

1000 s: (146.0...154.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0 *

1000 s: (-)

LOW IDLE

Speed rpm : 500

Rack travel in mm: <7.50

Del.quantity cm3/: <50.0 ** 1000 s: (-)

Remarks:

: MAN-NR. 7927

* applies to cylinders 2, 3, 4 and 8 ** applies for cylinders 1, 5, 6, and 7

APPLICATION

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.60...4.70 Prestroke mm : (4.55...4.75) Note remarks Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order Test sheet : MAN 14,5 e Edition : 04.11.88 Replaces Test oil : ISO-4113 : 0-45-90-135-180-225-Phasing Combination no. : 0 402 648 851 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P120A520LS7818 Time to cyl. no. : 8 EP type number : 0 412 628 830 Governor BASIC SETTING Governor design. : RQV250...1150PA902 Governer no. : 0 421 813 720 1st speed rpm: 1150 Customer-spec. information Rack travel in mm : 13.50...13.60 Customer : MAN Del.quantity cm3/: 28.9...29.1 : D2848LXE 40 Engine 100 s: (28.6...29.4) : 500.0 1st version kW Rated speed : 2300 Spread cm3 : 0.5TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil 2nd speed rpm : 250 inlet temp. °C Rack travel in mm: 7.30...7.50 : 38...42 Del.quantity cm3/ : 52.0...60.0 * 100 s: (-)
3rd speed rpm : 500
Rack travel in mm : 8.20...8.40 Overflow valve : 1 417 413 025 Del.quantity cm3/ : 125.0 ** Inlet press., bar : 1.50 100 s: (-) Test nozzle holder : 1 688 901 019 assembly (B) Setting of injection pump with governor Opening : 207...210 GUIDE SLEEVE TRAVEL pressure, bar rpm : 250 1st speed Orifice plate travel mm : 1.40...1.60 diameter mm 2nd speed rpm : 450 : 0,8 travel mm : 3.40...4.00 3rd speed rpm : 850 Test lines : 1 680 750 067 : 6.30...6.90 travel mm 4th speed rpm : 1150 Outside diameter travel mm : 9.40...9.60 5th speed rpm : 1450

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1210 Speed Rack travel in mm : 15.20...17.80

travel mm

: 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Aneroid pressure h: 1600

Del.quantity : 289.0...291.0 1000 : (286.0...294.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 57...65

Testing:

1st rack travel in: 12.50

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1280...1310

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 19...27

Testing:

Speed rpm : 100 Minimum rack trave: 8.90

Speed rpm : 250
Rack travel in mm : 7.30...7.50

Rack travel in mm : 2.00

rpm : 430...490 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed] Pressure hPa : 1600

Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.90...9.10 2nd pressure hPa : 250

Rack travel in m: 9.30...9.40

3rd pressure hPa : 900

Rack travel in m: 11.90...12.20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 149.0...151.0

1000 s: (146.0...154.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...120.0 * 1000 s: (-)

LOW IDLE

Speed rpm : 500 Rack travel in mm: <7.50

Del.quantity cm3/: <50.0 ** 1000 s: (-)

Remarks:

: MAN-NR. 7744

* applies to cylinders 2, 3, 4 and 8 ** applies for cylinders 1, 5, 6, and 7

APPLICATION

Ship

Note remarks

Test sheet : MB 18,3 m Edition : 05.08.88 Replaces : 14.8.87 Test oil : ISO-4113

Combination no. : 0 402 649 803

Injection pump

Pump designation : PE10P120A320LS7809-1

EP type number : 0 412 629 801

Governor

Governor design. : RQV300..1050PA797-4

Governer no. : 0 421 813 654

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M443 LA Engine

1st version kW : 401.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Over flow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 20.00...21.00 Firing order : 10- 9- 4- 1- 8-- 6- 3- 5- 2 7

Phasing : 0-45-72-117-144-189-

216-261-288-333

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 600

Rack travel in mm: 14.70...14.90

Del.quantity cm3/: 21.9...22.1

100 s: (21.6...22.4)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 6.6...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 800

travel mm : 5.80...6.10 4th speed rpm : 1075

: 7.40...7.70 travel mm

5th speed rpm : 1150

travel mm : 8.00...8.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 900 : 219.0...221.0 Del.quantity 1000 : (216.0...224.0) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 36...44 Testing: 1st rack travel in: 14.10 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1155...1185 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 9...17 Testing: : 200 Speed rpm Minimum rack trave: 8.60 : 300 Speed rom Rack travel in mm : 6.60...6.80 CONSTANT REGULATION rpm : 300...400 Speed TORQUE CONTROL 2nd speed rpm : 1050 Rack travel in m: 15.10...15.30 3rd speed rpm : 800 Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 900 Rack travel mm : 14.70...14.90 Measurement Speed 1/min: 600 1st pressure hPa : 400 Rack travel in m: 12.10...12.30 2nd pressure hPa : 600 Rack travel in m: 13.60...13.80

Rack travel in m: 14.80...14.90 4th pressure hPa : 1100 Rack travel in m: 15.20...15.40 5th pressure hPa : -Rack travel in m: 11.20...11.40 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1300 : 1050 Speed rpm Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1300 rpm : 800 Speed Del.quantity cm3/: 234.0...238.0 1000 s: (231.0...241.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm_ : 500 Del.quantity cm3/: 133.0...135.0 1000 s: (130.0...138.0) Spread cm3 : 8.001000 s: (-) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.10 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 230.0...250.0 1000 s: (226.0...254.0) Remarks:

3rd pressure hPa : 960

Note remarks

Test sheet : MB 18,3 m 1 Edition : 02,09,88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 649 804

Injection pump

Pump designation : PE10P120A320LS7809-1

EP type number : 0 412 629 801

Governor

Governor design. : RQV300..1050PA797-6

Governer no. : 0 421 813 705

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M443 A

1st version kW : 331.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. DC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Rack travel in mm : 20.00...21.00 Firing order 8- 7

: 10- 9- 4- 1- 8-- 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-

216-261-288-333 Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.60...12.70

Del.quantity cm3/ : 18.7...19.0

100 s: (18.4...19.3)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 6.4...6.7

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rom : 300

: 1.20...1.40 travel mm

2nd speed rpm : 600

: 4.90...5.10 travel mm

rpm : 800 3rd speed

travel mm : 5.80...6.10

rpm : 1075 4th speed

: 7.40...7.70 travel mm

rpm : 1150 5th speed

: 8.00...8.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1050 Speed Aneroid pressure h: 900 Del.quantity : 187.0...193.0)
Soread cm3 : 5.00

RATED SPEED

1st version Control lever

position degrees: 49...57

Testing:

1st rack travel in: 11.60 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1150...1180

Speed 4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Testing:

: 200 Speed * rpm Minimum rack trave: 8.60 : 300 rpm

Rack travel in mm : 6.40...6.70

CONSTANT REGULATION

rpm : 300...400 Speed

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.60...12.70

2nd speed rpm : 750

Rack travel in m: 13.60...13.90

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm Pressure hPa : -

: 11.30...11.70 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : 250

Rack travel in m: 11.60...11.80

2nd pressure hPa : 380

J10

Rack travel in m: 13.00...13.30

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Spread

Aneroid pressure h: 900

Speed : 600 rpm

Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0)

cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0)

cm3 : 8.00 Spread 1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 220.0...240.0

1000 s: (216.0...244.0)

Remarks:

Note remarks

Test sheet : MB 18,3 p Edition : 26.08.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 649 805

Injection pump

Pump designation: PE10P120A320LS7817

EP type number : 0 412 629 803

Governor

Governor design. : RQ300/1250PA856-1

: 0 421 801 449 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M443 LA

1st version kW : 400.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 20.00...21.00 : 10- 9- 4- 1- 8- 7 - 6- 3- 5- 2 Firing order

Phasing : 0-45-72-117-144-189-

216-261-288-333

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 15.50...15.70

Del.quantity cm3/: 22.4...22.6

100 s: (22.1...22.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.6...6.8 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 1050

Del.quantity : 224.0...226.0

1000 : (221.0...229.0) cm3 : 5.00

Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0 Testing: 1st rack travel in: 14.40 rpm : 1295...1310 Speed 2nd rack travel in: 4.00 Speed rpm : 1390...1420 4th rack travel in: 1500 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.7 Testing: Speed rpm : 200 Minimum rack trave: 8.10 rpm : 300 Rack travel in mm : 6.60...6.80 Rack travel in mm : 2.00 rpm : 380...420 Speed TORQUE CONTROL Dimension a mm :? 2nd speed rpm : 1250 Rack travel in m: 15.40...15.60 3rd speed rpm : 800 Rack travel in m: 16.10...16.30 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed hPa : 1050 Pressure Rack travel mm : 16.10...16.30 Measurement Speed 1/min : 600 1st pressure hPa : 400 Rack travel in m: 13.20...13.40 2nd pressure hPa : 750 Rack travel in m: 15.20...15.40 3rd pressure hPa : 1250 Rack travel in m: 16.20...16.40 4th pressure hPa : 1500 Rack travel in m: 16.60...16.80 5th pressure hPa : -Rack travel in m: 11.50...11.80 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1500 : 1250 Speed rpm Del.quantity cm3/: 222.0...226.0 1000 s: (219.0...229.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm: 800 Del.quantity cm3/: 235.0...239.0 1000 s: (232.0...242.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 129.0...131.0 1000 s: (126.0...134.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.40 Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 230.0...250.0 1000 s: (226.0...254.0)

Remarks:

Note remarks

Test sheet : MAN 18,2 e : 30.09.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 649 806

Injection pump

Pump designation : PE10P120A520L\$7819

EP type number : 0 412 629 804

Governor

Governor design. : RQV300...1050PA896 Governer no. : 0 421 813 715

Customer-spec. information Customer : MAN

Engine : D 2840 LF

: 405.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.90...5.00 : (4.85...5.05)

Rack travel in mm : 9.00...12.00 Firing order

: 10- 9- 4- 1- 8- 7 - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-

216-261-288-333

Tolerance + - D : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 1.2...1.8 100 s: (0.9...2.1)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.00...1.40 travel mm

2nd speed rpm : 500

: 3.10...3.70 travel mm

3rd speed rpm: 800

: 5.50...5.90 travel mm

4th speed rpm : 1050

: 7.60...7.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1125 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750 Aneroid pressure h: 1000 Del.quantity : 233.0...238.0)

: 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.00

rpm : 1090...1100 Speed 2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 12...20

Testing:

Speed : 100 rpm Minimum rack trave: 6.60 rpm : 300 Speed

Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

rpm : 320...435 Speed

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.10...11.20

2nd speed rpm : 750

Rack travel in m: 11.40...11.50

3rd speed rpm : 900

Rack travel in m: 11.30...11.40

Aneroid/Altitude Compensator Test

1st version

Setting : 500 Speed rom Pressure hPa : 1000

Rack travel mm : 11.40...11.50

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.20...9.40

2nd pressure hPa : 400

Rack travel in m: 9.60...9.70

3rd pressure hPa : 600

Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min: 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 1050 Speed

Del.quantity cm3/: 220.0...224.0 1000 s: (217.0...227.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 156.0...158.0 1000 s: (153.0...161.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed Low : 100

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Note remarks

Test sheet : MB 21,9 y 1 Edition : 04.11.88 Replaces : 21.8.87 Test oil : ISO-4113

Combination no. : 0 402 670 801

Injection pump

Pump designation : PE12P120A320LS7807

EP type number : 0 412 620 806

Governor

Governor design.: RSV350...750P0A825-1

Governer no. : 0 421 833 248

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 407.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)
Rack travel in mm : 9.00...12.00

Firing order : 12-1-5-9-8-3

- 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 15.80...15.90

Del.quantity cm3/: 24.1...24.3

,

100 s: (23.8...24.6)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.4...5.6
Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 Speed rpm: 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700

Del. quantity : 241.0...243.0

1000 : (238.0...246.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 23...31

Testing:

1st rack travel in: 14.80 Speed rpm : 750...755

2nd rack travel in: 4.00 Speed rpm: 775...788 4th rack travel in: 900

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 9...17

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.5

Testing:

Speed rpm: 100
Minimum rack trave: 15.00
Speed rpm: 350
Rack travel in mm: 5.40...5.60

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10 Speed rpm : 750...755

STARTING FUEL DELIVERY

Remarks:

Observe VDT-I-420/120 APPLICATION Generator

Note remarks

: SCA 11.0 u4 : 01.09.88 Test sheet Edition Replaces : 15.6.87 Test oil : ISO-4113

Combination no. : 0 402 676 800

Injection pump

Pump designation : PE6P120A720RS7001 EP type number : 0 412 626 800

Governor

Governor design. : RSV350...1100P1/481

Governer no. : 0 421 833 121

Customer-spec. information

: SAAB-SCANIA Customer

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 19.9...20.1

100 s: (19.6...20.4)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 1.3...1.7

100 s: (-)

cm3 : 0.3 Spread

100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3
Speed rpm: 800
Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 199.0...201.0 Del.quantity

1000 : (196.0...204.0)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 12.20

Speed rpm : 1090...1100 2nd rack travel in: 4.00

Speed rpm : 1170...1200 4th rack travel in: 1300

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 27...35

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 4.0 rpm : 350 Speed

Rack travel in mm : 4.40...4.60

Rack travel in mm: 2.00 Speed rpm : 440...500

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000

Del.quantity cm3/: 193.0...201.0 1000 s: (190.0...204.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.20

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 240.0...290.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW 1DLE

Speed rpm : 350 Rack travel in mm : 4,40...4.60 Del.quantity cm3/: 13.0...17.0 1000 s: (-)

cm3 : 3.00 Spread

1000 s: (6.00)

Remarks:

: DS11 40, 41, 42 : DSI11 40, 44

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. With letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on Aug. 18, 1983 Start of delivery - engine: DS 11 - 170 before TDC DSI 11 - 160 before TDC Firing sequence of engine: 1-5-3-6-2-4.

Note remarks

: MB 14,7 9 4 : 09.09.88 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 678 809

Injection pump

Pump designation : PE8P120A320LS7801-2

EP type number : 0 412 628 825

Governor

Governor design. : RSV450...1050P0A540

Governer no. : 0 421 833 302

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442LA

1st version kW : 320.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (4.15...5.35)

Rack travel in mm: 9.00...12.00 Firing order: 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm: 14.40...14.50

Del.quantity cm3/: 21.2...21.5

100 s: (20.9...21.8)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 450.0 2nd speed

Rack travel in mm: 4.9...5.2 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 750

Del.quantity : 212.0...215.0 1000 : (209.0...218.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 36...44 Testing: 1st rack travel in: 14.00 Speed rpm : 1060...1070 2nd rack travel in: 4.00 Speed rpm : 1110...1130 4th rack travel in: 1400 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 13...21 Setting point W/out bumper spring Speed rpm : 450 Rack travel in mm: 5.0 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 450 Speed Rack travel in mm : 4.90...5.20 Rack travel in mm : 2.00 rpm : 460...520 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 15.00...15.20 2nd speed rpm : 850 Rack travel in m: 15.70...15.90 3rd speed rpm : 925 Rack travel in m: 15.40...15.60 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed hPa : 750 Pressure Rack travel mm : 14.50...14.600 Measurement Speed 1/min: 600 1st pressure hPa : 450 Rack travel in m: 12.80...13.00 2nd pressure hPa : 550
Rack travel in m: 13.70...13.90
3rd pressure hPa : 950 Rack travel in m: 14.90...15.10

Rack travel in m: 11.60...11.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1250 rpm : 1030 Del.quantity cm3/: 230.0...232.0 1000 s: (227.0...235.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1250 Speed rpm: 850
Del.quantity cm3/: 242.0...245.0
1000 s: (239.0...248.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 154.0...156.0 1000 s: (151.0...159.0) Spread cm3 : 8.00 1000 s: (-) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14,00 Speed rpm : 1060...1070 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Remarks: **APPLICATION**

Forage harvester

4th pressure hPa : 1250

5th pressure hPa : -

Rack travel in m: 15.70...15.90

Note remarks

Test sheet : MB 14,7 9 5 Edition : 09.09.88

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 678 810

Injection pump

Pump designation : PE8P120A320LS7801-2

EP type number : 0 412 628 825

Governor

Governor design. : RSV450...1050P0A541

Governer no. : 0 421 833 303

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442A

1st version kW : 260.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (4.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 8-7-2-6-3-5-

4- 1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance $+ - \circ$: 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1030

Rack travel in mm: 12.70...12.80

Del.quantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 450.0

Rack travel in mm : 4.9...5.2 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030 Aneroid pressure h: 1100

Del.quantity : 181.0...183.0

1000 : (178.0...186.0) cm3 : 5.00

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.70

rpm : 1060...1070 Speed

2nd rack travel in: 4.00

rpm : 1110...1130 Speed

4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 450 Rack travel in mm: 5.0

Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 450

Rack travel in mm : 4.90...5.20

Rack travel in mm : 2.00

Speed rpm : 460...520

SET IDLE AUXILIARY SPRING

Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030 Rack travel in m: 12.70...12.80

2nd speed rpm : 950 Rack travel in m: 13.10...13.30

3rd speed rpm : 800

Rack travel in m: 13.80...14.00

4th speed rpm : 700

Rack travel in m: 14.40...14.60

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rom

Pressure hPa : -

Rack travel mm : 11.20...11.50

Measurement

1/min : 500 Speed

1st pressure hPa : 420

Rack travel in m: 11.90...12.10

2nd pressure hPa : 600

Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100

Speed rpm : 700

Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h:

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 1060...1070

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...200.0 1900 s: (176.0...204.0)

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Remarks:

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 10.0 c : 05.08.88 Test sheet Edition Replaces : 10.85 Test oil : ISO-4113 Combination no. : 0 402 745 800 Injection pump Pump designation : PESSP120A720LS7101 EP type number : 0 412 725 800 Governor Governor design. : R9300/1050PA690 : 0 421 801 234 Governer no. Customer-spec. information Customer : DAIMLER-BENZ Engine : 0M429 LA TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter

x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35) Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2 Phasing : 0-72-144-216-288 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 5 BASIC SETTING 1st speed rpm: 1050 Rack travel in mm : 13.80...13.90 Del.quantity cm3/: 20.1...20.3 100 s: (19.8...20.6) Spread cm3 : 0.5 100 s: (0.9) 2nd speed rpm : 300.0
Rack travel in mm : 6.0...6.4
Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1050 Aneroid pressure h: 700

Del.quantity : 201.0...206.0)

: 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 rpm Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.80

Speed : 1095...1110 rpm 2nd rack travel in: 4.00 Speed rpm : 1145...1185 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 7.70 Speed rpm : 300 Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 380...420 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : ~ Rack travel mm : 12.00...12.30 Measurement Speed 1/min: 500

1st pressure hPa : 240 Rack travel in m: 12.30...12.40 2nd pressure hPa : 350

Rack travel in m: 13.30...13.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/: 197.0...201.0 1000 s: (194.0...204.0) cm3 : 8,00 Spread

1000 s: (12.0) Aneroid pressure h: 700 Speed : 900 rpm Del.quantity cm3/: 204.0...208.0

1000 s: (201.0...211.0)

cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 157.0...159.0 1000 s: (154.0...162.0) Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...180.0

:

1000 s: (156.0...184.0)

Remarks:

Note remarks

: MB 10.0 m : 07.10.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 745 805

Injection pump

Pump designation : PESSP120A720LS7160

EP type number : 0 412 725 802

Governor

Governor design. : RQ300/1050PA774-2

: 0 421 801 450 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M449 A

: 184.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp, values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 : 1- 3- 5- 4- 2 Firing order

Phasing : 0-72-144-216-288

Tolerance $+ - \circ$: 0.50 (0.75)

: 5 Time to cyl. no.

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 13.10...13.30

Del.quantity cm3/: 19.6...19.8

100 s: (19.3...20.1)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.3...6.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 650

Del.quantity

: 196.0...198.0 1000 : (193.0...201.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0

Testing: 1st rack travel in: 12.60 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.4 Testing: rpm : 200 Speed Minimum rack trave: 8,30 rpm : 300 Speed Rack travel in mm : 6.30...6.60 Rack travel in mm : 2.00 rpm : 365...405 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.60...13.80 2nd speed rpm : 750 Rack travel in m: 14.00...14.20 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed hPa : 650 Pressure Rack travel mm : 13.10...13.30 Measurement Speed 1/min : 600 1st pressure hPa : 250 Rack travel in m: 11.20...11.40 2nd pressure hPa : 400 Rack travel in m: 12.50...12.70 3rd pressure hPa : 750 Rack travel in m: 13.20...13.30 4th pressure hPa : 1200 Rack travel in m: 14.00...14.20 5th pressure hPa : -

Rack travel in m: 10.80...11.10

FUEL DELIVERY CHARACTERISTICS

1/min : 220 (240)

1st version Aneroid pressure h: 1200 rpm : 1050 Speed Del.quantity cm3/: 208.0...211.0 1000 s: (205.0...214.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm Del.quantity cm3/: 216.0...220.0 1000 s: (213.0...223.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 150.0...152.0 1000 s: (147.0...155.0) Spread cm3 : 8.00 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.60 rpm : 1095...1110 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Remarks:

Speed

START CUT-OUT

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.60...3.70 : (3.55...3.75) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 Test sheet : BAO 15,9 b Edition : 05.08.88 : 1.85 : ISO-4113 Replaces Test oil Phasing : 0-60-120-180-240-300 Combination no. : 0 402 746 803 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6P120A320RS7105 EP type number : 0 412 726 800 rpm: 700 1st speed Governor Governor design. : RQV400...750PA730-1 Rack travel in mm : 13.80...13.90 Governer no. : 0 421 813 487 Del.quantity cm3/: 41.9...42.1 Customer-spec. information Customer : BAUDOUIN 100 s: (41.6...42.4) Engine : 6P15-2 cm3 : 0.5Spread 1st version kW : 450.0 100 s: (0,9) : 1500 Rated speed rpm : 400.0 2nd speed Rack travel in mm : 3.6...4.0

Del.quantity cm3/: 1.7...2.3

100 s: (1.4...2.6)

Spread cm3: 0.8 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 100 s: (1.2) Overflow valve : 1 417 413 025 FULL LOAD DELIV. AT FULL LOAD STOP Inlet press., bar: 1.50 1st version rpm : 700 Speed : 419.0...421.0 Test nozzle holder Del.quantity 1000 : (416.0...424.0) assembly : 1 688 901 019 : 5.00 cm3 Spread Opening 1000 : (9.00) : 207...210 pressure, bar RATED SPEED Orifice plate diameter mm : 0,8 1st version Testing: Test lines : 1 680 750 074 1st rack travel in: 12.80 Speed rpm : 750...755 2nd rack travel in: 4.00 Speed rpm: 780...793 Outside diameter x Wall thickness 4th rack travel in: 900 x Length mm : 6.00X1.50X1000 rpm : 0.00...1.00 Speed (A) Injection pump setting values Insp. values in parentheses LOW IDLE 1 Set equal delivery quant. Control lever position degrees: 4...12 per values BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 rpm : 100 Speed

Minimum rack trave: 5.30

Speed rpm : 400
Rack travel in mm : 3.70...3.90
Rack travel in mm : 2.00

START CUT-OUT

Speed 1/min: 340 (360)

LOW IDLE

Remarks:

APPLICATION Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.75...2.85 Prestroke mm : (2.70...2.90) Rack travel in mm : 10.30...10.70 Note remarks Firing order : 1-5-3-6-2-4 : MAC 11,1 a Test sheet : 07.10.88 Edition Replaces : 8.4.88 Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 402 746 810 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design. : RQV325...900PA848K 1st speed rpm : 900 : 0 421 815 168 Governer no. Rack travel in mm : 13.90...14.00 Customer-spec. information Customer : MACK Del.quantity cm3/: 23.6...23.8 : E6-350 4VH Engine 100 s: (23.3...24.1) 1st version kW : 261.0 Spread cm3 : 0.5: 1800 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Rack travel in mm: 4.0...4.2 Test oil inlet temp. OC Del.quantity cm3/: 3.2...3.8 : 38...42 100 s: (3.0...4.0) Overflow valve cm3 : 0.8Spread : 2 417 413 011 100 s: (1.2) (B) Setting of injection pump Inlet press., bar: 1.50 with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 325 : 1.20...1.40 Opening travel mm : 207...210 pressure, bar 2nd speed rpm : 450 : 3.10...3.30 travel mm Orifice plate 3rd speed rpm : 850 diameter mm : 0,6 : 5.90...6.10 travel mm 4th speed rpm : 1000 : 7.50...7.70 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 x Length mm : 6.00x2.00x600 Speed rpm : 1130 Rack travel in mm : 7.00...13.00 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version Speed rpm : 900 Aneroid pressure h: 900 Del.quantity: 236.5...238.5 1000: (233.5...241.5) BEGINNING OF DELIVERY Test pressure, bar: 17...19

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 53...61 Testing: 1st rack travel in: 12.90 rpm : 950...960 Speed 2nd rack travel in: 4.00 rpm : 1075...1105 Speed 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed : 275 Lbw Minimum rack trave: 5.50 : 325 rpm CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL 1st speed rpm : 900

Rack travel in mm : 4.00...4.20

Torque control curve - 1st version Rack travel in m: 13.90...14.00 2nd speed rpm : 625 Rack travel in m: 14.10...14.20 3rd speed rpm : 800 Rack travel in m: 14.00...14.10 4th speed rpm : 500 Rack travel in m: 0.00...13.50

Aneroid/Altitude Compensator Test

1st version

Setting pm : 625 hPa : 900 Speed rom Pressure Rack travel mm : 14.10...14.20

Measurement 1/min : 625 Speed 1st pressure hPa : -

Rack travel in m: 8.30...8.70 2nd pressure hPa : 275 Rack travel in m: 10.00...10.10 3rd pressure hPa : 570 Rack travel in m: 12.30...12.70 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed rpm : 625 Del.quantity cm3/ : 257.0...263.0 1000 s: (254.0...266.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 136.0...140.0 1000 s: (134.0...142.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.90 rpm : 950...960 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 140.0...180.0 1000 s: (130.0...190.0) Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.00...4.20 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0) cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

:

K02

: 2.75...2.85 : (2.70...2.90) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 10.30...10.70 Note remarks Firing order : 1-5-3-6-2-4 : MAC 11.1 a2 : 07.10.88 Test sheet Edition Replaces : 15.4.88 Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 402 746 815 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design. : RQV325...850PA848-2K rpm: 850 1st speed Governer no. : 0 421 815 170 Rack travel in mm : 12.00...12.10 Customer-spec. information : MACK Customer Del.quantity cm3/: 18.1...18.3 : E6-275 4VH 100 s: (17.8...18.6) Engine 1st version kW : 202.0 Spread cm3 : 0.5: 1700 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 325.0
Rack travel in mm : 4.5...4.7
Del.quantity cm3/ : 3.2...3.8 Test oil inlet temp. °C : 38...42 100 s: (3.0...4.0) Overflow valve cm3 : 0.8Spread : 2 417 413 011 100 s: (1.2) Inlet press., bar : 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 325 Opening : 1.20...1.40 travel mm : 207...210 pressure, bar 2nd speed rpm : 450 travel mm : 2.80...3.10 3rd speed rpm : 850 Orifice plate diameter mm : 0,6 travel mm : 6.20...6.40 rpm : 1000 4th speed : 7.70...7.90 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position Degree: -1
Speed rpm: 1110
Rack travel in mm: 7.00...13.00 x Wall thickness : 6,00x2,00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version Speed rpm : 850 BEGINNING OF DELIVERY Aneroid pressure h: 900 Del.quantity : 181.0...183.0 1000 : (178.0...186.0) Test pressure, bar: 17...19

cm3 : 5.00 1000 : (9.00) Spread cm3

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.00 rpm : 900...910 Speed 2nd rack travel in: 4.00

rpm : 1025...1055 Speed

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

: 275 Speed Lbw Minimum rack trave: 6.00 Speed rpm : 325

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850 Rack travel in m: 12.00...12.10

2nd speed rpm : 600 Rack travel in m: 12.60...12.70

3rd speed rpm : 700

Rack travel in m: 12.50...12.70

4th speed rpm : 500

Rack travel in m: 0.00...12.40

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 Speed hPa : 900 Pressure

Rack travel mm : 12.60...12.70

Measurement

Speed 1/min: 600

1st pressure hPa ; -

Rack travel in m: 9.50...9.90

2nd pressure hPa : 215

Rack travel in m: 10.30...10.40 3rd pressure hPa : 360

Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 600 Speed

Del.quantity cm3/: 210.5...216.5

1000 s: (207.5...219.5) cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 144.0...148.0 1000 s: (142.0...150.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00 Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed : 100 **rpm**

Del.quantity cm3/: 160.0...200.0 1000 s: (150.0...210.0) Rack travel in mm: 9.50...9.90

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0

1000 s: (30.0...40.0) cm3 : 8.00

Spread 1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 11,1 a3 : 07.10.88 Edition : 7.1.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 816 Injection pump Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 Governor Governor design. : RQV325...875PA848-3K Governor no. : 0 421 815 171 Governer no. Customer-spec. information Customer : MACK Engine : EM6-250L 4VH 1st version kW : 186.0 : 1750 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 011 Inlet press., bar : 1.50 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 908 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

BEGINNING OF DELIVERY Test pressure, bar: 17...19 Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 10.30...10.70 Firing order : 1- 5- 3- 6- 2- 4 Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875
Rack travel in mm: 10.80...10.90

Del.quantity cm3/: 16.3...16.5

100 s: (16.0...16.8)

Spread cm3:0.5

100 s: (0.9)

2nd speed rpm : 325.0
Rack travel in mm : 4.5...4.7
Del.quantity cm3/: 3.9...4.5
100 s: (3.7...4.7)
Spread cm3 : 0.8

spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
1st speed rpm : 325
travel mm : 1.20...1.40

2nd speed rpm : 450 _ travel mm : 2.80...3.20

3rd speed rpm : 850 travel mm : 6.20...6.40

4th speed rpm : 1000 travel mm : 7.70...7.90

GUIDE SLEEVE POSITION Control-lever position Degree: -1

Speed rpm : 1100 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 875

Aneroid pressure h: 1200 Del.quantity : 163.0...

Del.quantity : 163.0...165.0 1000 : (160.0...168.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever position degrees: 52...60

Testing:

1st rack travel in: 9.80 rpm : 925...935 Speed 2nd rack travel in: 4.00 rpm : 1010...1040 Speed

4th rack travel in: 1100

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed rpm : 275 Minimum rack trave: 6.00 rpm : 325 Speed

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 10.80...10.90

2nd speed rpm : 510

Rack travel in m: 13.00...13.20
3rd speed rpm : 700
Rack travel in m: 11.60...11.80

4th speed rpm : 550

Rack travel in m: 0.00...13.10

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 510 Speed Pressure hPa : 1200

: 13.00...13.20 Rack travel mm

Measurement

Speed 1/min : 510

1st pressure hPa : -

Rack travel in m: 9.10...9.50

2nd pressure hPa : 215

Rack travel in m: 10.30...10.40

3rd pressure hPa : 435

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed rpm : 510

Del.quantity cm3/: 240.0...246.0

1000 s: (237.0...249.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 146.0...150.0

1000 s: (144.0...152.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80 rpm : 925...935 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 165.0...205.0

1000 s: (155.0...215.0)

Rack travel in mm : 9.10...9.50

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders

to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 11,1 a4 Edition : 07.10.88 Replaces : 12.11.87 : ISO-4113 Test oil Combination no. : 0 402 746 817 Injection pump Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 Governor Governor design. : RQV325...900PA848-4K Governer no. : 0 421 815 173 Customer-spec. information Customer : MACK : EC6-350 4VH Engine : 261.0 1st version kW : 1800 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 011 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter

: 2.75...2.85 Prestroke mm : (2.70...2.90) Rack travel in mm : 10.30...10.70 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 900 1st speed Rack travel in mm : 14.60...14.70 Del.quantity cm3/: 24.1...24.3 100 s: (23.8...24.6) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 325 travel mm : 1.20...1.40 2nd speed rpm : 450 travel mm : 3.10...3.30 3rd speed rpm : 850 : 5.90...6.10 travel mm 4th speed rpm : 1000 travel mm : 7.50...7.70 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1130 Speed Rack travel in mm : 7.00...13.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 900 Aneroid pressure h: 1200 Del.quantity : 241.5...243.5 1000 : (238.5...246.5)

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 6.00x2.00x600

BEGINNING OF DELIVERY Test pressure, bar: 17...19

x Wall thickness

x Length mm

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 13.60 rpm : 950...960 Speed 2nd rack travel in: 4.00

Speed

rpm : 1090...1120 4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed : 275 rpm Minimum rack trave: 6.40 Speed rpm : 325

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 14.60...14.70

2nd speed rpm : 625

Rack travel in m: 14.90...15.10

3rd speed rpm : 800

Rack travel in m: 14.70...14.80

4th speed rpm : 500

Rack travel in m: 0.00...14.50

Aneroid/Altitude Compensator Test

1st version

Setting Speed

: 625 rom hPa : 1200 Pressure

: 14.90...15.10 Rack travel mm

Measurement

1/min: 625 Speed

1st pressure hPa : -

Rack travel in m: 8.70...9.10

2nd pressure hPa : 280

Rack travel in m: 10.40...10.50

3rd pressure hPa : 650

Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 625 Speed

Del.quantity cm3/: 265.0...271.0 1000 s: (262.0...274.0) Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: -

rpm : 400 Speed Del.quantity cm3/: 130.5...134.5

1000 s: (128.5...136.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.60

Speed rpm : 950...960

STARTING FUEL DELIVERY

: 100 Speed Lbw

Del.quantity cm3/: 140.0...180.0 1000 s: (130.0...190.0) Rack travel in mm: 8.70...9.10

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

cm3 : 8.00 Spread

1000 s: (12,00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MAC 11,1 a5 : 07.10.88 Edition Replaces : 12.11.87 Test oil : ISO-4113

Combination no. : 0 402 746 818

Injection pump

Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807

Governor

Governor design. : RQV325...875PA848-5K

Governer no. : 0 421 815 174

Customer-spec. information Customer : MACK

: EM6-275L 4VH Engine

1st version kW : 202.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm

: (2.70...2.90)

Rack travel in mm : 10.30...10.70 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - D : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

Spread

rpm: 875 1st speed

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 19.0...19.2

100 s: (18.7...19.5)

cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm : 4.6...4.8 Del.quantity cm3/: 3.7...4.3 100 s: (3.5...4.5)

cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

: 2.80...3.10 travel mm

rpm : 850 3rd speed

: 6.20...6.40 travel mm

rpm : 1000 4th speed

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1110 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1200

Del.quantity : 190.0...192.0 1000 : (187.0...195.0)

Spread cm3 : 5.001000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.20 rpm : 925...935 Speed 2nd rack travel in: 4.00

Speed rpm : 1030...1060

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed rpm : 275 Minimum rack trave: 6.10 rpm : 325

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 12.20...12.30

2nd speed rpm : 510

Rack travel in m: 14.10...14.30

3rd speed rpm : 700

Rack travel in m: 13.20...13.40

4th speed rpm : 400

Rack travel in m: 0.00...13.80

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 510 hPa : 1200 Speed Pressure

Rack travel mm : 14.10...14.30

Measurement

1/min : 510 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.60

2nd pressure hPa : 280

Rack travel in m: 10.60...10.70

3rd pressure hPa : 485

Rack travel in m: 12.70...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 510 Del.quantity cm3/ : 262.5...268.5 1000 s: (259.5...271.5)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 145.0...149.0 1000 s: (143.0...151.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0...210.0 1000 s: (160.0...220.0)

Rack travel in mm : 9.40...9.60

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 37.0...43.0 1000 s: (35.0...45.0)

cm3 : 8.00 Spread 1000 s: (12,00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders

to 3.0...3.1 mm.

: 2.75...2.85 : (2.70...2.90) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 10.30...10.70 Firing order : 1-5- 3- 6- 2- 4 Note remarks Test sheet : MAC 11,1 a6 Edition : 07.10.88 Replaces : 7.1.88 Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 746 819 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design. : RQV325...875PA848-6K Governer no. : 0 421 815 175 1st speed rpm : 875 Rack travel in mm : 11.00...11.10 Customer-spec. information Customer : MACK Del.quantity cm3/: 15.8...16.0 Engine : EM6-225L 4VH 100 s: (15.5...16.3) cm3 : 0.5 1st version kW : 165.0 Spread : 1750 Rated speed 100 s; (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Rack travel in mm : 4.6...4.8 Del.quantity cm3/ : 3.8...4.4 Test oil inlet temp. °C : 38...42 100 s: (3.6...4.6) Overflow valve cm3 : 0.8Spread : 2 417 413 011 100 s: (1.2) Inlet press., bar : 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly 1st speed rpm : 325 Opening travel mm : 1.20...1.40 pressure, bar : 207...210 2nd speed rpm : 450 travel mm : 2.80...3.10 Orifice plate 3rd speed rpm : 850 diameter mm : 0,6 travel mm : 6.20...6.40 4th speed rpm : 1000 : 7,70,...7,90 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 rpm : 1110 x Length mm : 6.00x2.00x600 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 875 Aneroid pressure h: 900

Del. quantity : 158.5...160.5 1000 : (155.5...163.5)

K11

(A) Injection pump setting values

per values

Test pressure, bar: 17...19

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant.

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 52...60 Testing: 1st rack travel in: 10.00 rpm : 925...935 Speed 2nd rack travel in: 4.00 rpm : 1015...1045 Speed 4th rack travel in: 1150 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 9...17 Testing: Speed rpm : 275 Minimum rack trave: 6.10 rpm : 325 Rack travel in mm : 4.60...4.80 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Torque control curve - 1st version Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 11.00...11.10
2nd speed rpm : 510
Rack travel in m: 13.20...13.40
3rd speed rpm : 600
Rack travel in m: 12.50...12.70
4th speed rpm : 700
Rack travel in m: 11.80...12.00
5th speed rpm : 350 5th speed rpm : 350 Rack travel in m: 0.00...13.20 Aneroid/Altitude Compensator Test 1st version Setting Speed Low : 510 hPa : 900 Rack travel mm : 13.20...13.40

1/min: 510

1st pressure hPa : - Rack travel in m: 8.50...8.90

Rack travel in m: 9.70...9.80

2nd pressure hPa : 220

3rd pressure hPa : 500 Rack travel in m: 12.00...12.40 FUEL DELIVERY CHARACTERISTICS

1st version 1mm rack travel less than

full load rack tr: 10.00 Speed rpm : 925...935

STARTING FUEL DELIVERY

LOW IDLE

BREAKAWAY

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del.quantity cm3/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Measurement

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks : MAC 11,1 b5 Test sheet Edition : 07.10.88 Replaces : 15.4.88 Test oil : ISO-4113 Phasing Combination no. : 0 402 746 820 Injection pump Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design. : RQV325...850PA878K 1st speed : 0 421 815 177 Governer no. Customer-spec. information Customer : MACK Engine : E6-275 4VH 1st version kW : 202.0 Spread : 1700 Rated speed TEST BENCH REQUIREMENTS 2nd speed Test oil inlet temp. OC : 38...42 Overflow valve Spread : 2 417 413 011 Inlet press., bar : 1.50 Test nozzle holder assembly : 1 688 901 101 Opening travel mm : 207...210 pressure, bar 2nd speed Orifice plate 3rd speed rpm : 850 diameter mm : 0,6 travel mm 4th speed travel mm Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00x2.09x600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Rack travel in mm : 10.30...10.70 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

rpm: 850

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

cm3 : 0.5

100 s: (0.9)

rpm : 325.0 Rack travel in mm : 4.5...4.7 Del.quantity cm3/ : 3.2...3.8 100 s: (3.0...4.0)

cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 rpm : 450

travel mm : 2.80...3.10

: 6.20...6.40

rpm : 1000

: 7.70...7.90

GUIDE SLEEVE POSITION Control-lever position

Degree: -1
Speed rpm : 1110
Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 900

Del.quantity : 181.0...183.0 1000 : (178.0...186.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.00 rpm : 900...910 Speed 2nd rack travel in: 4.00

rpm : 1025...1055 Speed

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed : 275 COM Minimum rack trave: 6.00 Speed : 325 Low

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850 Rack travel in m: 12.00...12.10

2nd speed rpm : 600 Rack travel in m: 12.60...12.70

3rd speed rpm : 700

Rack travel in m: 12.50...12.70

4th speed rpm : 500

Rack travel in m: 0.00...12.40

Aneroid/Altitude Compensator Test

1st version

Setting

; 600 Speed rpm Pressure hPa : 900

Rack travel mm : 12,60,,,12,70

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.90

2nd pressure hPa : 215

Rack travel in m: 10.30...10.40

3rd pressure hPa : 360

Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed

rpm : 600 Del.quantity cm3/: 210.5...216.5

1000 s: (207.5...219.5)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 144.0...148.0 1000 s: (142.0...150.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00 Speed : 900...910 rpm

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 160.0...200.0

1000 s: (150.0...210.0)

Rack travel in mm : 9.50...9.90

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0) Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders

to 3.0...3.1 mm.

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 10.50 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Firing order : 1-5-3-6-2-4 : MAC 11.1 b1 : 07.10.88 Test sheet Edition : 8.4.88 Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Combination no. : 0 402 746 822 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design. : RQV325...900PA878-2K 1st speed rpm : 900 : 0 421 815 179 Governer no. Rack travel in mm : 13.90...14.00 Customer-spec. information Del.quantity cm3/: 23.6...23.8 Customer : MACK : E6-350 4VH Engine 100 s: (23.3...24.1) 1st version kW : 261.0 Spread cm3 : 0.5: 1800 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Rack travel in mm : 4.0...4.2 Del.quantity cm3/ : 3.2...3.8 Test oil inlet temp. OC : 38...42 100 s: (3.0...4.0) Overflow valve Spread cm3 : 0.8: 2 417 413 011 100 s: (1.2) Inlet press., bar : 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 325 travel mm : 1.20...1.40 Opening. : 207...210 pressure, bar 2nd speed rpm : 450 travel mm : 3.10...3.30 3rd speed rpm : 850 Orifice plate diameter mm : 0,6 travel mm : 5.90...6.10 4th speed rpm : 1000 : 7.50...7.70 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 : 6.00x2.00x600 rpm : 1130 Speed x Length mm Rack travel in mm : 7.00...13.00 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version rpm : 900 Speed BEGINNING OF DELIVERY Aneroid pressure h: 900 Del.quantity : 236.5...238.5 1000 : (233.5...241.5) Test pressure, bar: 17...19

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 12.90 rpm : 950...960 Speed 2nd rack travel in: 4.00

rpm : 1075...1105 Speed

4th rack travel in: 1150

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed : 275 rpm Minimum rack trave: 5.50 : 325 Speed Com

Rack travel in mm : 4.00...4.20

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

rpm : 900

1st speed rpm : 900 Rack travel in m: 13.90...14.00

2nd speed rpm : 625

Rack travel in m: 14.10...14.20

rpm : 800 3rd speed

Rack travel in m: 14.00...14.10

4th speed rpm : 500

Rack travel in m: 0.00...13.50

Aneroid/Altitude Compensator Test

1st version

Setting

: 625 Speed Low Pressure hPa : 900

: 14.10...14.20 Rack travel mm

Measurement

1/min : 625 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 275 Rack travel in m: 10.00...10.10

3rd pressure hPa : 570

Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 625 Speed

Del.quantity cm3/: 257.0...263.0 1000 s: (254.0...266.0)

Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 136.0...140.0 1000 s: (134.0...142.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90

Speed rom : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0 1000 s: (130.0...190.0)

Rack travel in mm : 8.30...8.70

LOW IDLE

: 325 Speed rpm

Rack travel in mm : 4.00...4.20 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders

:

to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.75...2.85 : (2.70...2.90) Prestroke mm Rack travel in mm : 10.30...10.70 Firing order : 1-5-3-6-2-4 Note remarks : MAC 11.1 b2 : 07.10.88 Test sheet Edition Replaces : 2.11.87 : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 0 402 746 823 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 : 0 412 726 807 EP type number BASIC SETTING Governor Governor design. : RQV325...875PA878-3K rpm: 875 1st speed : 0 421 815 180 Governer no. Rack travel in mm : 12.20...12.30 Customer-spec. information : MACK Del.quantity cm3/: 19.0...19.2 Customer Engine : EM6-275L 4VH 100 s: (18.7...19.5) : 202.0 cm3 : 0.5 1st version kW Spread : 1750 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Rack travel in mm : 4.6...4.8 Del.quantity cm3/ : 3.7...4.3 Test oil inlet temp. °C : 38...42 100 s: (3.5...4.5) Overflow valve Spread cm3 : 0.8: 2 417 413 011 100 s: (1.2) Inlet press., bar : 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 325 1st speed Opening. travel mm : 1.20...1.40 : 207...210 rpm : 450 pressure, bar 2nd speed travel mm : 2.80...3.10 3rd speed rpm : 850 Orifice plate : 0,6 diameter mm travel ma : 6.20...6.40 4th speed rpm : 1000 : 7.70...7.90 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter x Wall thickness Control-lever position Degree: -1 : 6.00x2.00x600 Speed rpm : 1110 x Length mm Rack travel in mm : 7.00...13.00 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant.

> 1st version Speed

rpm : 875

Aneroid pressure h: 1200 Del.quantity: 190.0...192.0 1000: (187.0...195.0)

per values

Test pressure, bar: 17...19

BEGINNING OF DELIVERY

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.20 rpm : 925...935 Speed 2nd rack travel in: 4.00

rpm : 1030...1060 Speed

4th rack travel in: 1150 rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

: 275 Speed rpm Minimum rack trave: 6.10 rpm : 325 Speed

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 12.20...12.30

2nd speed rpm : 510

Rack travel in m: 14.10...14.30

3rd speed rpm : 700

Rack travel in m: 13.20...13.40

4th speed rpm : 400

Rack travel in m: 0.00...13.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 510 rpm hPa : 1200 Pressure

Rack travel mm : 14.10...14.30

Measurement

1/min : 510 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.60

2nd pressure hPa : 280

Rack travel in m: 10.60...10.70 3rd pressure hPa : 485

Rack travel in m: 12.70...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 145.0...149.0

1000 s: (143.0...151.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 9,40...9.60

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 37.0...43.0

1000 s: (35.0...45.0)

cm3 : 8.00Spread

1006 s: (12,00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders

to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.75...2.85 Prestroke mm : (2.70...2.90) Note remarks Rack travel in mm : 10.30...10.70 : 1-5-3-6-2-4 Firing order Test sheet : MAC 11,1 b3 : 07.10.88 Edition : 7.1.88 Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 402 746 824 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design. : RQV325...875PA878-4K 1st speed rpm: 875 Governer no. : 0 421 815 181 Rack travel in mm : 11.00...11.10 Customer-spec. information Customer : MACK Del.quantity cm3/ : 15.8...16.0 Engine : EM6-225L 4VH 100 s: (15.5...16.3) 1st version kW : 165.0 Spread cm3 : 0.5Rated speed : 1750 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Rack travel in mm : 4.6...4.8 Del.quantity cm3/ : 3.8...4.4 Test oil inlet temp. °C : 38...42 100 s: (3.6...4.6) Overflow valve cm3 : 0.8Spread : 2 417 413 011 100 s: (1.2) Inlet press., bar : 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 325 Opening travel mm : 1.20...1.40 pressure, bar : 207...210 2nd speed rpm : 450 travel mm : 2.80...3.10 3rd speed rpm : 850 Orifice plate diameter mm : 0,6 : 6.20...6.40 travel mm 4th speed rpm : 1000 travel mm : 7.70...7.90 Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 rpm : 1110 : 6.00x2.00x600 x Length mm Speed Rack travel in mm : 7.00 ... 13.00 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values ____ 1st version rpm : 875 Speed

Aneroid pressure h: 900

Del.quantity : 158.5...160.5 1000 : (155.5...163.5)

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever

position degrees: 52...60

Testing: 1st rack travel in: 10.00 rpm : 925...935 Speed 2nd rack travel in: 4.00 Speed rpm : 1015...1045 4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever position degrees: 9...17 Rack travel in mm: 4.7

Testing: Speed : 275 Lbw Minimum rack trave: 6.10 Speed rpm : 325

Rack travel in mm : 4,60,...4.80

CONSTANT REGULATION Speed rpm : 325...520

TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 11.00...11.10 2nd speed rpm : 510 Rack travel in m: 13.20...13.40

3rd speed rpm : 600 Rack travel in m: 12.50...12.70 4th speed rpm : 700

Rack travel in m: 11.80...12.00 5th speed rpm : 350

Rack travel in m: 0.00...13.20

Aneroid/Altitude Compensator Yest

1st version Setting : 510 Speed rpm hPa : 900 Pressure Rack travel mm : 13.20...13.40

Measurement Speed 1/min : 510

1st pressure hPa : -Rack travel in m: 8.50...8.90 2nd pressure hPa : 220

Rack travel in m: 9.70...9.80 3rd pressure hPa : 500

Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed rpm : 510

Del.quantity cm3/: 234.0...240.0 1000 s: (231.0...243.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 131.0...135.0 1000 s: (129.0...137.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00 rpm : 925...935 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...175.0 1000 s: (125.0...185.0)

Rack travel in mm : 8.50...8.90

LOW IDLE

rpm : 325 Speed Rack travel in mm : 4.60...4.80

Del.quantity cm3/: 38.0...44.0 1000 s: (36.0...46.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 11,1 b6 Test sheet Edition : 07.10.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 825 Injection pump Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 Governor Governor design. : RQV325...900PA878-5K Governer no. : 0 421 815 182 Customer-spec. information Customer : MACK Engine : EC6-350 4VH : 261.0 1st version kW Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 011 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0.6 Test lines : 1 680 750 008 Outside diameter

: 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

: 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 14.60...14.70 Del.quantity cm3/: 24.1...24.3 100 s: (23.8...24.6) Spread cm3 : 0.5100 s: (0.9) rpm : 325.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 325 : 1.20...1.40 travel mm 2nd speed rpm : 450 : 3.10...3.30 travel mm 3rd speed rpm : 850 travel mm : 5.90...6.10 4th speed rpm : 1000 travel mm : 7.50...7.70 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1130 Speed Rack travel in mm : 7.00...13.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Aneroid pressure h: 1200 Del.quantity : 241.5...243.5 1000 : (238.5...246.5)

Prestroke mm

: 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 10.30...10.70

x Wall thickness

per values ____

Test pressure, bar: 17...19

BEGINNING OF DELIVERY

x Length mm

Spread cm3 : 5.001000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 13.60 rpm : 950...960 Speed

2nd rack travel in: 4.00

Speed rpm : 1090...1120 4th rack travel in: 1200 Speed

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed rpm : 275 Minimum rack trave: 6.40 rpm : 325 Speed

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 14.60...14.70

2nd speed rpm: 625
Rack travel in m: 14.90...15.10
3rd speed rpm: 800

Rack travel in m: 14.70...14.80

: 500 4th speed rpm

Rack travel in m: 0.00...14.50

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 625 hPa : 1200 Speed Pressure

Rack travel mm : 14.90...15.10

Measurement

Speed 1/min : 625

1st pressure hPa : -

Rack travel in m: 8.70...9.10

2nd pressure hPa : 280 Rack travel in m: 10.40...10.50

3rd pressure hPa : 650

Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rom : 625

Del.quantity cm3/: 265.0...271.0 1000 s: (262.0...274.0)

cm3 : 8.00

Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/: 130.5...134.5

1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.60

Speed rpm : 950...960

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0

1000 s: (130.0...190.0)

Rack travel in mm : 8.70...9.10

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 39.0...45.0

1000 s: (37.0...47.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders

to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 11.1 b4 : 07.10.88 Test sheet Edition : 7.1.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 826 Injection pump Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 Governor Governor design.: RQV325...875PA878-6K Governer no. : 0 421 815 183 Customer-spec. information Customer : MACK : EM6-250L 4VH Engine 1st version kW : 186.0 Rated speed : 1750 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 011 Inlet press., bar : 1.50 Test nozzle holder assembly : 1 688 901 101 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter

x Wall thickness x Length mm : 6.00x2.00x600 Insp. values in parentheses Set equal delivery quant.

(A) Injection pump setting values per values ____

BEGINNING OF DELIVERY Test pressure, bar: 17...19 Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 10.30...10.70 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 16.3...16.5

100 s: (16.0...16.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0
Rack travel in mm : 4.5...4.7
Del.quantity cm3/ : 3.9...4.5
100 s: (3.7...4.7)
Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rom : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

: 2.80...3.20 rpm : 850 travel mm

3rd speed

: 6.20...6.40 travel mm

rpm : 1000 4th speed

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION Control-lever position Degree: -1

Speed rpm: 1100 Rack travel in mm: 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1200

Del.quantity : 163.0...165.0 1000 : (160.0...168.0)

: 5.00 Cm3 Spread 1000 : (9.00)

RATED SPEED

ist version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 9.80 Speed rpm : 925...935 2nd rack travel in: 4.00

Speed rpm : 1010...1040 4th rack travel in: 1100

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed : 275 rpm Minimum rack trave: 6.00 rpm : 325

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 875 1st speed

Rack travel in m: 10.80...10.90

2nd speed rpm : 510

Rack travel in m: 13.00...13.20

3rd speed rpm : 700

Rack travel in m: 11.60...11.80

4th speed rpm : 550

Rack travel in m: 0.00...13.10

Aneroid/Altitude Compensator Test

1st version

Setting

: 510 Speed rpm Pressure hPa : 1200

Rack travel mm : 13.00...13.20

Measurement

1/min : 510 Speed

1st pressure hPa : -

Rack travel in m: 9.10...9.50

2nd pressure hPa : 215

Rack travel in m: 10.30...10.40

3rd pressure hPa : 435

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 510

Del.quantity cm3/: 240.0...246.0

1000 s: (237.0...249.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 146.0...150.0

1000 s: (144.0...152.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80 Speed rom : 925...935

STARTING FUEL DELIVERY

Rack travel in mm : 9.10...9.50

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders

to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.75...2.85 : (2.70...2.90) Prestroke mm Rack travel in mm : 10.00...10.50 Note remarks : 1-5- 3- 6- 2- 4 firing order Test sheet : MAC 11,1 c Edition : 07.10.88 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 746 827 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. Pump designation : PES6P120A720RS7148 EP type number : 0 412 726 810 BASIC SETTING Governor Governor design. : RQV325...875PA848-7K rpm: 875 1st speed : 0 421 815 176 Governer no. Rack travel in mm : 11.10...11.20 Customer-spec. information Customer : MACK Del.quantity cm3/: 19.9...20.1 : EM6 300L 4VH Engine 100 s: (19.6...20.4) : 224.0 1st version kW Spread cm3 : 0.5: 1750 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 325.0 Rack travel in mm : 4.5...4.7 Del.quantity cm3/ : 3.9...4.5 Test oil inlet temp. OC : 38...42 100 s: (3.7...4.7) Overflow valve Spread cm3 : 0.8: 2 417 413 011 100 s: (1.2) Inlet press., bar : 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL rpm : 325 1st speed Opening : 1.20...1.40 travel mm pressure, bar : 207...210 2nd speed rpm : 450 : 2.50...2.80 travel mm Orifice plate 3rd speed rpm : 600 diameter mm : 4.10...4.30 : 0,6 travel mm 4th speed rpm : 875 : 7.30...7.50 travel mm Test lines rpm : 1000 : 1 680 750 008 5th speed travel mm : 8.70...9.00 Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 6.00x2.00x600 Control-lever position Degree: -1 (A) Injection pump setting values Speed rpm : 1040 Insp. values in parentheses Rack travel in mm : 6.00...12.00 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values BEGINNING OF DELIVERY 1st version Test pressure, bar: 17...19 rpm : 875 Speed

Aneroid pressure h: 1500

Del.quantity : 199.0...201.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 55...63 Testing: 1st rack travel in: 10.10 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 1000...1030 Speed 4th rack travel in: 1150 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm : 275 Minimum rack trave: 6.00 Speed rpm : 325 Rack travel in mm : 4.50...4.70 CONSTANT REGULATION Speed rpm : 325...520 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 11.10...11.20 2nd speed rpm : 510
Rack travel in m: 16.50...16.70
3rd speed rpm : 700 Rack travel in m: 13.30...13.50 : 600 4th speed rpm Rack travel in m: 15.50...15.70 5th speed rpm : 450 Rack travel in m: 0.00...16.60 Aneroid/Altitude Compensator Test

1st version Setting rpm : 510 Speed Pressure

hPa : 1500 : 16.50...16.70 Rack travel mm

Measurement

Speed 1/min : 510

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 370

Rack travel in m: 10.70...10.80 3rd pressure hPa : 710

Rack travel in m: 14.40...14.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 Speed rpm : 510

Del.quantity cm3/: 299.0...305.0 1000 s: (296.0...308.0)

cm3:8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -Speed rpm : 400

Del.quantity cm3/: 152.5...156.5 1000 s: (150.5...158.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 Speed rpm : 915...925

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140.0...160.0 1000 s: (135.0...165.0)

Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

Spread cm3 : 8.001000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 11,1 d Edition : 07.10.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 828 Injection pump Pump designation : PES6P120A720RS7148 EP type number : 0 412 726 810 Governor Governor design.: RQV325...875PA878-7K : 0 421 815 184 Governer no. Customer-spec. information Customer : MACK Engine : EM6 300L 4VH 1st version kW : 224.0 : 1750 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant, per values ____

BEGINNING OF DELIVERY Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 10.00...10.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 19.9...20.1

100 s: (19.6...20.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.5...4.7 Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

rpm : 450 2nd speed

: 2.50...2.80 travel mm

3rd speed rpm : 600

travel mm : 4.10...4.30

rpm : 875 4th speed

travel mm : 7.30...7.50

5th speed rpm : 1000

travel mm : 8.70...9.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1040 Speed

Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1500 Del.quantity : 199.0...204.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever

Testing: 1st rack travel in: 10.10 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 1000...1030 Speed 4th rack travel in: 1150

position degrees: 55...63

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever position degrees: 7...15

Testing: Speed : 275 rpm Minimum rack trave: 6.00 : 325 rom

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION rpm : 325...520 Speed

TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 11.10...11.20 2nd speed rpm : 510 Rack travel in m: 16.50...16.70 3rd speed rpm : 700 Rack travel in m: 13.30...13.50

: 600 4th speed rpm Rack travel in m: 15.50...15.70 : 450 5th speed rpm

Rack travel in m: 0.00...16.60

Aneroid/Altitude Compensator Test

1st version Setting Speed rom : 510 Pressure hPa : 1500

Rack travel mm : 16.50...16.70

Measurement Speed 1/min : 510

1st pressure hPa : -Rack travel in m: 8.30...8.70 2nd pressure hPa : 370

Rack travel in m: 10.70...10.80
3rd pressure hPa : 710

Rack travel in m: 14,40...14.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 Speed rpm : 510

Del.quantity cm3/: 299.0...305.0 1000 s: (296.0...308.0)

cm3 : 8.00Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 152.5...156.5 1000 s: (150.5...158.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 rpm : 915...925 Speed

STARTING FUEL DELIVERY

rpm : 100 Del.quantity cm3/: 140.0...160.0 1000 s: (135.0...165.0)

Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 39.0...45.0

1000 s: (37.0...47.0) cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.75...2.85 Prestroke mm : (2.70...2.90) Rack travel in mm : 10.30...10.70 Note remarks Firing order : 1-5-3-6-2-4 Test sheet : MAC 11,1 a7 : 07.10.88 Edition : 7.1.88 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 746 829 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 : 0 412 726 807 EP type number BASIC SETTING Governor Governor design.: RQV325..1050PA848-8K 1st speed rpm : 1050 Governer no. : 0 421 815 185 Rack travel in mm : 12.20...12.30 Customer-spec. information Del.quantity cm3/ : 17.4...17.6 : MACK Customer : E6-270 4VH Engine 100 s: (17.1...17.9) 1st version kW : 201.0 Spread cm3 : 0.5: 2100 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 3.8...4.4 Test oil inlet temp. °C : 38...42 100 s: (3.6...4.6) Overflow valve Spread cm3 : 0.8: 2 417 413 011 100 s: (1.2) Inlet press., bar : 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 101 GUIDE SLEEVE TRAVEL 1st speed rpm : 325 Opening travel mm : 1.40...1.60 pressure, bar : 207...210 2nd speed rpm : 450 travel mm : 2.50...2.80 3rd speed rpm : 800 Orifice plate diameter mm : 0,6 travel mm : 4.80...5.00 4th speed rpm : 1050 travel mm : 7.30...7.60 Test lines : 1 680 750 008 5th speed rpm : 1200 travel mm : 9.40...9.60 Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x2.00x600 x Length mm Control-lever position Degree: -1 (A) Injection pump setting values Speed rpm : 1210 Insp. values in parentheses Rack travel in mm : 7.00...13.00 Set equal delivery quant. FULL LOAD DELIY. AT FULL LOAD STOP per values BEGINNING OF DELIVERY 1st version Test pressure, bar: 17...19 rpm : 1050 Speed

Aneroid pressure h: 900

Del.quantity : 174.0....79.0) : 5.00 Spread Cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 55...63 Testing: 1st rack travel in: 11.20 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: : 275 Speed rpm Minimum rack trave: 6.40 : 325 Speed rpm Rack travel in mm : 4.90...5.10 CONSTANT REGULATION rpm : 325...600 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.20...12.30 2nd speed rpm : 630 Rack travel in m: 12.00...12.20 3rd speed rpm : 925 Rack travel in m: 11.90...12.10 4th speed rpm : 800 Rack travel in m: 12.20...12.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 630 rpm Pressure hPa : 900 Rack travel mm : 12.00...12.10 Measurement 1/min : 630 Speed

3rd pressure hPa : 400 Rack travel in m: 11.00...11.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 Speed rpm : 630 Del.quantity cm3/ : 192.0...198.0 1000 s: (189.0...201.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 129.0...133.0 1000 s: (127.0...135.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.20 Speed rpm : 1090...1100 STARTING FUEL DELIVERY LOW IDLE Speed rpm : 325 Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 38.0...44.0 1000 s: (36.0...46.0) Spread cm3: 8.00 1000 s: (12.00) Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

1st pressure hPa : -

2nd pressure hPa : 270

Rack travel in m: 8.60...9.00

Rack travel in m: 9.60...9.70

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 11,1a10 Edition : 07.10.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 831 Injection pump Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 Governor Governor design. : RQV325..1050PA848-9K Governer no. : 0 421 815 187 Customer-spec. information Customer : MACK Engine : EM6 300 2VH : 224.0 1st version kW Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 011 Inlet press., bar: 1.50 Test nozzle holder assembly : 9 688 901 101 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values

insp. values in parentheses

Set equal delivery quant.

per values ____

Test pressure, bar: 17...19

BEGINNING OF DELIVERY

: (2.70...2.90) Rack travel in mm : 10.30...10.70 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm : 1050 1st speed Rack travel in mm : 12.90...13.00 Del.quantity cm3/: 19.9...20.1 100 s: (19.6...20.4) Spread cm3 : 0.5 100 s: (0.9) 2nd speed rpm : 325.0 Rack travel in mm: 4.8...5.0
Del.quantity cm3/: 3.8...4.4
100 s: (3.6...4.6)
Spread cm3: 0.8 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 325 : 1.40...1.60 travel mm rpm : 450 2nd speed : 2.50...2.80 travel mm rpm : 800 3rd speed : 4.80...5.00 travel mm 4th speed rpm : 1050 : 7.30...7.60 travel mm rpm : 1200 5th speed travel mm : 9,40,...9,60 GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1200 Rack travel in mm : 7.00...13.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed Aneroid pressure h: 900

: 2.75...2.85

Prestroke mm

: 199.0...201.0 Del.quantity 1000 : (196.0...204.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 56...64 Testing: 1st rack travel in: 11.90 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rom : 1170...1200 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm : 275 Minimum rack trave: 6.30 rpm Rack travel in mm : 4.80...5.00 CONSTANT REGULATION rpm : 325...600 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.90...13.00 2nd speed rpm : 630 Rack travel in m: 13.00...13.10 3rd speed rpm : 500 Rack travel in m: 0.00...12.60 Aneroid/Altitude Compensator Test 1st version

Setting : 630 Speed Lbw Pressure hPa : 900 Rack travel mm : 13.00...13.10

Measurement Speed 1/min: 630

1st pressure hPa : -Rack travel in m: 7.80...8.20 2nd pressure hPa : 190 Rack travel in m: 9.10...9.20 3rd pressure hPa : 410 Rack travel in m: 11.40...11.80 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed rpm : 630

Del.quantity cm3/: 213.0...219.0 1000 s: (210.0...222.0)

cm3 : 8.00Spread 1000 s: (12.0) rpm : 400 Speed

Del.quantity cm3/: 121.0...125.0 1000 s: (119.0...127.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 110.0...150.0

1000 s: (100.0...160.0)

Rack travel in mm: 7.80...8.20

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 38.0...44.0 1000 s: (36.0...46.0)

cm3 : 8.00

Spread 1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

APPLICATION 0mn ibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a9 Edition : 07.10.88 Replaces : 7.3.88 Test oil : ISO-4113

Combination no. : 0 402 746 833

Injection pump

Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807

Governor

Governor design. : RQV325...975PA848-11

Governer no. : 0 421 815 190

Customer-spec. information Customer : MACK

Engine : E6-350 2VH

1st version kW : 257.0 : 1950 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm : (2.70...2.90)

Rack travel in mm : 10.30...10.70

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 975 1st speed

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 23.0...23.2

100 s: (22.7...23.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm : 4.5...4.7 Del.quantity cm3/ : 3.8...4.4

100 s: (3.6...4.6) cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.40...1.60 travel mm

rpm : 450 2nd speed

: 2.50...2.80 travel mm

3rd speed rpm : 800

travel mm : 4.80...5.00

rpm : 1050 4th speed

: 7.30...7.60 travel mm

rpm : 1200 5th speed travel mm : 9.40...9.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1190 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

L05

Aneroid pressure h: 900 Del. quantity : 250.5...235.5) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 55...63 Testing: 1st rack travel in: 13.10 Speed rpm : 1015...1025 2nd rack travel in: 4.00 Speed rpm : 1130...1160 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm Minimum rack trave: 6.00 Speed rpm : 325 Rack travel in mm : 4.50...4.70 CONSTANT REGULATION rpm : 325...600 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 975 Rack travel in m: 14.10...14.20 2nd speed rpm : 700 Rack travel in m: 13.70...13.90 3rd speed rpm : 600 Rack travel in m: 0.00...13.30 Aneroid/Altitude Compensator Test 1st version Setting : 700 Speed rom Pressure hPa : 900 Rack travel mm : 13.80...13.90 Measurement

1/min: 700 Speed 1st pressure hPa : -Rack travel in m: 7.80...8.20 2nd pressure hPa : 240 Rack travel in m: 9.30...9.40 3rd pressure hPa : 510 L06

Rack travel in m: 12.20...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 Speed rpm : 700 Del.quantity cm3/: 237.0...233.0 1000 s: (224.0...236.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.10 Speed rpm : 1015...1025 STARTING FUEL DELIVERY

LOW IDLE

rpm : 325 Speed Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 38.0...44.0 1000 s: (36.0...46.0) cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

APPLICATION 0mnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : UNI 9,5 e Edition : 30.09.88 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + - 0 Combination no. : 0 402 746 834 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7154 EP type number : 0 412 726 811 BASIC SETTING Governor Governor design. : RQV275...1100PA888K 1st speed rpm : 1100 : 0 421 815 191 Governer no. Rack travel in mm : 11.70...11.80 Customer-spec. information : IVECO-UNIC Customer Del.quantity cm3/: 19.8...20.0 Engine : 8460.41.102 100 s: (19.5...20.3) 1st version kW : 235.0 Spread cm3 : 0.5Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 275.0 2nd speed Test oil Rack travel in mm: 4.9...5.1 inlet temp. OC : 38...42 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8 Overflow valve Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar : 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 GUIDE SLEEVE TRAVEL assembly 1st speed rpm : 275 Opening : 1.20...1.40 travel mm : 207...210 2nd speed rpm : 450 pressure, bar travel mm : 3.10...3.90 3rd speed rpm : 800 Orifice plate diameter mm : 0,8 travel mm : 6.30...6.70 4th speed rpm : 1100 travel mm : 9.70...9.90 Test lines : 1 680 750 067 5th speed rpm : 1200 : 13.00...14.00 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00X1.50X1000 Control-lever position x Length mm Degree: -1 (A) Injection pump setting values

rpm : 1125 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1200

L07

Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Del.quantity : 170.0...203.0) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 53...61 Testing: 1st rack travel in: 10.70 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 11...19 Testing: Speed : 100 rpm Minimum rack trave: 6.50 Speed rpm : 275 Rack travel in mm : 4.90...5.10 CONSTANT REGULATION rpm : 280...400 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 850 Rack travel in m: 12.20...12.30 Znd speed rpm : 1100 Rack travel in m: 11.70...11.80 3rd speed rpm : 950 Rack travel in m: 11.90...12.10
4th speed rpm : 750
Rack travel in m: 11.90...12.10 5th speed rpm : 400 Rack travel in m: 11.30...11.50 Aneroid/Altitude Compensator Test 1st version Setting : 850 Speed rpm hPa : 1200 Pressure

Rack travel mm ; 12.20...12.30

Measurement

1/min: 850 Speed

1st pressure hPa : -

Rack travel in m: 9.00...9.20

2nd pressure hPa : 400

Rack travel in m: 10.80...10.90

3rd pressure hPa : 270

Rack travel in m: 9.50...9.70

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm : 850 Speed

Del.quantity cm3/: 213.0...219.0 1000 s: (210.0...222.0)

Aneroid pressure h: 1200 Speed rpm : 400 Aneroid pressure h: -

rpm : 500 Speed Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 110.0...130.0 1000 s: (106.0...134.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 4.90...5.10 Del.quantity cm3/ : 17.0...23.0 1000 s: (14.0...26.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 a 2 Edition : 09.09.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 841

Injection pump

Pump designation : PES6P120A720LS7114-2

EP type number : 0 412 726 815

Governor

Governor design. : RQ300/1050PA774-3

: 0 421 801 451 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : 0M447 LA

1st version kW : 265.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3

Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.8...6.2

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3) cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position Degree: -2

rpm : 600

Rack travel in mm : 18.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1500

: 229.0...231.0 Del.quantity

1000 : (226.0...234.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 19.5

Testing: 1st rack travel in: 13.00 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.0 rpm : 300 Speed Rack travel in mm: 5.80...6.20 Rack travel in mm: 2.00 Speed rpm : 360...400 TORQUE CONTROL Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.00...14.20 3rd speed rpm : 700 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 700 Pressure : 14.00...14.10 Rack travel mm Measurement 1/min : 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.80...12.00
2nd pressure hPa : 500
Rack travel in m: 13.40...13.60
3rd pressure hPa : 1100
Rack travel in m: 14.20...14.40 4th pressure hPa : 1500 Rack travel in m: 14.70...14.90 5th pressure hPa : -Rack travel in m: 10.40...10.70

START CUT-OUT Speed 1/min : 220 (240)

1st version Aneroid pressure h: 1500 Speed rpm : 1050

FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 234.0...238.0 1000 s: (233.0...241.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm Del.quantity cm3/: 246.0...249.0 1000 s: (243.0...252.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm Del.quantity cm3/: 146.0...148.0 1000 s: (143.0...151.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 c Edition : 09.09.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 776 805

Injection pump

Pump designation : PES6P120A720LS7155

EP type number : 0 412 726 812

Governor

Governor design. : RSV350..1050P0A529-1

Governer no. : 0 421 833 295

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M447 LA

1st version kW : 265.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. CC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

: 6- 2- 4- 1- 5- 3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 4.5...4.8

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 1400

: 240.0...242.0 Del.quantity

1000 : (237.0...245.0) cm3 : 5.00

Spread

1000 : (9.00)

RATED SPEED

Control lever position degrees: 50...58 Testing: 1st rack travel in: 12.40 Speed rpm : 1090...1100 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 24...32 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 4.6 Speed rpm : 350 Rack travel in mm : 4.50...4.80 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.40...13.50 2nd speed rpm : 825 Rack travel in m: 14.10...14.30 3rd speed rpm : 950 Rack travel in m: 13.60...13.80 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 650 Rack travel mm : 13.50...13.70 Measurement 1/min : 600 Speed 1st pressure hPa : 350 Rack travel in m: 11.20...11.40 2nd pressure hPa : 400 Rack travel in m: 11.90...12.10 3rd pressure hPa : 850 Rack travel in m: 13.70...13.90 4th pressure hPa : 1400 Rack travel in m: 14.30...14.50 5th pressure hPa : -Rack travel in m: 9.80...10.10 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 650 Speed rpm : 600 Del.quantity cm3/ : 234.0...237.0 1000 s: (231.0...240.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1400 : 825 rpm Del.quantity cm3/: 263.0...266.0 1000 s: (260.0...269.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 151.0...154.0 1000 s: (148.0...157.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.40 rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 D 8 : 27.10.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 436 104FA

Injection pump

Pump designation : PES6MW100/120RS1143

EP type number : 0 413 406 137

Governor

Governor design. : RQV350...1200MW82-1

: 0 420 083 153 Governer no.

Cust. part no. : 3916000

Customer-spec. information Customer : CUMMINS/US

Engine : 6 CTA-830

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values inso, values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.15...3.25

: (3.10...3.30) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 1200 1st speed

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 13.8...14.0

100 s: (13.6...14.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.1...7.2 Del.quantity cm3/: 1.2...1.6

100 s: (1.0...1.8)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

: 7.60...7.80 travel mm

2nd speed rpm : 1350

travel mm : 8.60...9.00

3rd speed rpm : 350

travel mm : 1.20...1.60

rpm : 800 4th speed

: 4.90...5.50 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed Aneroid pressure h: 700

Del.quantity : 138.0...140.0 1000 : (136.0...142.0) Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

Control lever position degrees: 42...50 Testing: 1st rack travel in: 11.10 Speed rpm : 1240...1250 2nd rack travel in: 4.00 Speed rpm : 1370...1400 4th rack travel in: 1455 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 11...19 Setting point w/out bumper spring rpm : 350 Rack travel in mm : 7.1 Testing: rpm : 100 Speed Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 7.10...7.20 CONSTANT REGULATION rpm : 360...500 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 12.10...12.20 2nd speed rpm : 750 Rack travel in m: 12.60...12.70 3rd speed rpm : 1000 Rack travel in m: 12.10...12.20 4th speed rpm : 900
Rack travel in m: 12.20...12.40 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Pressure hPa : Rack travel mm : 10.70...10.80 Measurement 1/min : 500 Speed 1st pressure hPa : 390 Rack travel in m: 11.00...11.10 2nd pressure hPa : 480 Rack travel in m: 11.60...11.90 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70

Speed 1/min : 270 (280) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm: 750
Del.quantity cm3/: 139.0...142.0
1000 s: (136.5...144.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 100.0...102.0 1000 s: (98.0...104.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1240...1250 Speed STARTING FUEL DELIVERY LOW IDLE 1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

START CUT-OUT

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks : 3.05...3.15 Prestroke mm : (3.00...3.20) : CUM 8,3 D 5 Test sheet Rack travel in mm : 9.00...12.00 Edition : 24.10.88 Firing order : 1-5-3-6-2-4 Replaces Test oil : ISO-4113 Combination no. : 0 403 436 106 : 0-60-120-180-240-300 Phasing Phasing Injection pump Tolerance + - 0 : 0.50 (0.75) : PES6MW100/120RS1143 Pump designation EP type number : 0 413 406 137 Time to cyl. no. : 1 Governor Governor design. : RQV350...1100MW78-2 BASIC SETTING : 0 420 083 160 Governer no. rpm: 1100 1st speed : 3908567 Cust. part no. Rack travel in mm: 12.70...12.80 Customer-spec. information Customer : CUMMINS/US Del.quantity cm3/: 15.0...15.2 100 s: (14.8...15.4) Engine : 6 CTA-8.3 : 179.0 1st version kW Spread cm3 : 0.3 Rated speed : 2200 100 s: (0.6) TEST BENCH REQUIREMENTS Znd speed rpm : 350.0 Rack travel in mm : 7.3...7.5 Test oil inlet temp. OC Del.quantity cm3/: 1.6...2.0 : 38...42 100 s: (1.3...2.2) Overflow valve cm3 : 0.3Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 017 GUIDE SLEEVE TRAVEL rpm : 1240 1st speed : 8.80...9.20 Opening travel mm pressure, bar : 207...210 rpm : 1140 2nd speed : 7.80...8.00 travel mm : 700 3rd speed Orifice plate rpm diameter mm : 3.80...4.40 : 0.6 travel mm : 350 4th speed Lbw travel mm : 1.20...1.60 Test lines : 1 680 750 014 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version : 6.00X2.00X600 x Length mm Speed rpm : 1100 Aneroid pressure h: 900 Del.quantity : 150.0...152.0 (A) Injection pump setting values Insp. values in parentheses 1000 : (148.0...154.0) cm3 : 3.50 Set equal delivery quant. Spread per values 1000 : (6.00) BEGINNING OF DELIVERY RATED SPEED

1st version Control lever

position degrees: 44...52

Testing:

1st rack travel in: 11.70

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1330

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.4

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 rpm : 350 Speed

Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

rpm : 360...550 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 900

Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.60...9.70 2nd pressure hPa : 230

Rack travel in m: 10.40...10.50

3rd pressure hPa : 490

Rack travel in m: 12.00...12.40

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

L16

Del.quantity cm3/ : 76.0...78.0 1000 s: (74.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0 1000 s: (202.0...228.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 7.30...7.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark/lock = 8.0° angular displacement of the cam after start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 D 4 Test sheet : 30.09.88 Edition Replaces Test oil : ISO-4113 Phasing Combination no. : 0 403 436 107 Injection pump Pump designation : PES6MW100/120RS1143 EP type number : 0 413 406 137 Governor Governor design. : RQV350...1100MW82-2 1st speed : 0 420 083 161 Governer no. Customer-spec. information : CUMMINS/US Customer : 6 CTA Engine : 186.0 1st version kW Spread : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve Spread : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening travel mm : 207...210 pressure, bar travel mm Orifice plate diameter mm : 0.6 4th speed travel mm Test lines : 1 680 750 014

Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.05...3.15 : (3.00...3.20) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 1100

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 15.2...15.4

100 s: (15.0...15.6)

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.2...7.4 Del.quantity cm3/: 1.6...2.0 100 s: (1.4...2.2) cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

: 9.00...9.40 2nd speed rpm : 1140

: 7.80...8.00

3rd speed rpm : 700

: 3.80...4.40 travel mm

rpm : 350

: 1,20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 900

Del.quantity : 152.0...154.0 1000 : (150.0...156.0) Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.80

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1235...1265

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 12...20

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.3

Testing:

rpm : 100 Speed

Minimum rack trave: 8.80 rpm

Rack travel in mm : 7.20...7.40

CONSTANT REGULATION

rpm : 360...500 Speed

TORQUE CONTROL

Torque control curve ~ 1st version

1st speed rpm : 1100

Rack travel in m: 12.80...12.90

2nd speed rpm : 700

Rack travel in m: 13.50...13.60

3rd speed rpm : 900

Rack travel in m: 12.90...13.20

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm Pressure hPa : -

Rack travel mm : 9.50...9.70

Measurement

1/min : 500 Speed

1st pressure hPa : 300

Rack travel in m: 10.80...10.90

2nd pressure hPa : 570

Rack travel in m: 12.30...12.60

3rd pressure hPa : 900

Rack travel in m: 13.50...13.60

START CUT-OUT

1/min : 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 700 Speed

Del.quantity cm3/: 160.5...163.5 1000 s: (158.0...166.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 77.0...79.0

1000 s: (75.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 205.0...225.0

1000 s: (202.0...228.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 7.20...7.40 Del.quantity cm3/: 16.0...20.0

1000 s: (14.0...22.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark/lock = 8.0° angular displacement of the cam after

start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 17 : 30.09.88 Edition : 13.06.88 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 150 Injection pump Pump designation : PES6MW100/720RS1120 EP type number : 0 413 406 112 Governor Governor design. : RQV300...1300MW59 Governer no. ` : 0 420 083 077 Customer-spec. information Customer : DB : 0M366LA Engine : 141.7 1st version kW Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.50...3.60

Rack travel in mm : 9.00...12.00

; (3.45...3.65)

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 8.6...8.8 100 s: (8.4...9.0) cm3 : 0.3 Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 6.1...6.2 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 : 9.50...9.90 travel mm 2nd speed rpm : 1350 travel mm : 8.50...8.70 3rd speed rpm: 450 : 2.40...3.00 trave! mm 4th speed rpm : 300 : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1340 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 700 : 86.0...88.0 Del.quantity 1000 : (84.0...90.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED

Prestroke mm

1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 11.10 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1450...1480 Speed 4th rack travel in: 1530 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.1 Testing: Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.10...6.20 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 310 Speed Pressure Rack travel mm : 11.80...11.90 Measurement 1/min : 500 Speed 1st pressure hPa : 700 Rack travel in m: 12.10...12.20 2nd pressure hPa : -Rack travel in m: 11.00...11.10
3rd pressure hPa : 280
Rack travel in m: 11.20...11.50

1/min: 230 (250)

FUEL DELIVERY CHARACTERISTICS

Speed rpm: 750
Del.quantity cm3/: 75.5...78.5
1000 s: (73.0...81.0)

Aneroid pressure h: 700

Spread cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 47.0...49.0 1000 s: (45.0...51.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11,10 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 6.10...6.20 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3: 3.50 1000 s: (5.50) Remarks:

START CUT-OUT

1st version

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : MB 6,0 D 47 Phasing Edition : 30.09.88 Replaces : 13.06.88 Tolerance + - 0 Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 156 1st speed rpm: 1300 Injection pump Pump designation : PES6MW100/720RS1120 Rack travel in mm : 12.10...12.20 EP type number : 0 413 406 112 Governor Del.quantity cm3/: 8.6...8.8 Governor design. : RQV300...1300MW59 Governer no. : 0 420 083 077 100 s: (8.4...9.0) Customer-spec. information Spread : DB Customer : 0M366LA Engine 2nd speed 1st version kW : 141.7 Rated speed : 2600 TEST BENCH REQUIREMENTS Spread Test oil inlet temp. OC : 38...42 with governor Overflow valve : 1 417 413 047 1st speed Inlet press., bar: 1.50 travel mm Test nozzle holder travel mm : 0 681 343 009 assembly travel mm Opening. 4th speed pressure, bar : 172...175 travel mm Test lines : 1 680 750 015 Outside diameter Speed x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed per values ____ Del quantity BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.50...3.60

Rack travel in mm : 9.00...12.00

: (3.45...3.65)

cm3 : 0.3100 s: (0.6) rpm : 300.0 Rack travel in mm: 6.0...6.1 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3 100 s: (0.5) (B) Setting of injection pump GUIDE SLEEVE TRAVEL rpm : 1450 : 9.50...9.90 2nd speed rpm : 1350 : 8.50...8.70 3rd speed rpm : 450 : 2.40...3.00 rpm : 300 : 1.20...1.60 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1340 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1300 Aneroid pressure h: 700 : 86.0...88.0 1000 : (84.0...90.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED

: 1-5-3-6-2-4

: 0-60-120-180-240-300

: 0.50 (0.75)

Prestroke mm

1st version Control lever

position degrees: 48...56

Testing:

1st rack travel in: 11.10

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1440...1470

4th rack travel in: 1530

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 6.0

Testing:

rpm : 100 Speed Minimum rack trave: 8.00

rpm : 300 Speed

Rack travel in mm : 6.00...6.10

CONSTANT REGULATION

rpm : 320...550 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed Pressure

hPa : 310 Rack travel mm : 11.80...11.90

Measurement

1/min : 500 Speed

1st pressure hPa : 700

Rack travel in m: 12.10...12.20

2nd pressure hPa : -

Rack travel in m: 11.00...11.10

3rd pressure hPa : 280

Rack travel in m: 11.20...11.50

START CUT-OUT

1/min : 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/: 75.5...78.5
1000 s: (73.0...81.0)

Spread cm3 : 5.001000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500
Del.quantity cm3/: 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 83.0...93.0

1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.00...6.10 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MB 6,0 D 9 Phasing : 0-60-120-180-240-300 : 24.10.88 Edition Replaces : 16.05.88 Tolerance + - 0 : 0.50 (0.75) : ISO-4113 Test oil BASIC SETTING Combination no. : 0 403 446 158 1st speed rpm : 1300 Injection pump Pump designation : PES6MW100/720RS1131 Rack travel in mm : 12.20...12.30 EP type number : 0 413 406 123 Del.quantity cm3/: 9.6...9.8 Governor Governor design. : RQV300...1300MW50-1 : 0 420 083 089 Governer no. 100 s: (9.4...10.0) Customer-spec. information Spread cm3 : 0.3 : DB Customer 100 s: (0.6) : OM 366 LA Engine rpm : 300.0 2nd speed 1st version kW : 150.0 Rack travel in mm: 6.1...6.2 Rated speed : 2600 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL rpm : 1450 1st speed Inlet press., bar : 1.50 travel mm : 9.40...10.20 rpm : 1350 2nd speed Test nozzle holder : 8.50...8.70 travel mm : 0 681 343 009 assembly 3rd speed rpm : 450 travel mm : 2.60...2.80 Opening 4th speed rpm : 300 pressure, bar : 172...175 travel mm : 1.20...1.60 GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 Outside diameter Speed rpm : 1340 x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x1.50x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values insp. values in parentheses 1st version rpm : 1300 Set equal delivery quant. Speed per values Aneroid pressure h: 700 96.5...98.5 1000 : (94.5...100.5) cm3 : 3.50 Del.quantity BEGINNING OF DELIVERY Test pressure, bar: 30...32 Spread 1000 : (6.00)

: (3.65...3.85) | RATED SPEED Rack travel in mm : 9.00...12.00 |

: 3.70...3.80

Prestroke mm

1st version Control lever

position degrees: 48...56

Testing:

1st rack travel in: 11.20

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

rpm : 1440...1470 Speed

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 12...20

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.1

Testing:

Speed rpm : 100

Minimum rack trave: 7.60 rpm : 300

Rack travel in mm : 6.10...6.20

CONSTANT REGULATION

Speed rpm : 350...550

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : -

Rack travel mm : 10.50...10.60

Measurement

1/min : 500 Speed

1st pressure hPa : 170

Rack travel in m: 10.90...11.00

2nd pressure hPa : 225

Rack travel in m: 11.80...12.10

3rd pressure hPa : 700

Rack travel in m: 12.20...12.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 575

Del.quantity cm3/: 82.0...85.0

1000 s: (79.5...87.5)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 50.5...52.5

1000 s: (48.5...54.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.10...6.20 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks : MB 6.0 D 11 : 08.06.88 Test sheet Edition Replaces : 11.85 Test oil : ISO-4113 Combination no. : 0 403 446 168 Injection pump Pump designation : PES6MW100/720RS1131 EP type number : 0 413 406 123 Governor Governor design. : RQV300...1300MW67 Governer no. : 0 420 083 099 Customer-spec. information Customer : DB : 0M 366 LA Engine : 150.0 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar : 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 11.90...12.00 Del.quantity cm3/ : 9.6...9.8 100 s: (9.4...10.0) Spread cm3 : 0.3 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 6.1...6.2 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1425 : 9.30...9.70 travel mm 2nd speed rpm : 1350 : 8.50...8.70 travel mm 3rd speed rpm : 500 : 2.70...3.30 travel mm 4th speed rpm : 300 : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1340 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 700 96.0...98.0 1000 : (94.0...100.0) cm3 : 3.50 Del.quantity Spread 1000 : (6.00) RATED SPEED

: 1-5-3-6-2-4

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.70,..3.80 : (3.65...3.85) 1st version Control lever

position degrees: 59...67

Testing:

1st rack travel in: 10.90

rpm : 1345...1355 Speed

2nd rack travel in: 4.00

rpm : 1440...1470 Speed

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 14...22

Setting point w/out bumper spring

rpm : 300 Rack travel in mm : 6.1

Testing:

Speed : 100 rpm Minimum rack trave: 7.60

Speed rpm : 300

Rack travel in mm : 6.10...6.20

CONSTANT REGULATION

rpm : 350...550 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed Low Pressure hPa : 370

Rack travel mm : 10.50...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : 700

Rack travel in m: 11.90...12.00

2nd pressure hPa : -

Rack travel in m: 10.00...10.10

3rd pressure hPa : 470

Rack travel in m: 11.40...11.70

START CUT-OUT

1/min : 220 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 600

Del.quantity cm3/: 80.0...84.0 1000 s: (78.0...86.0)

cm3 : 5.00Spread 1000 s: (7.5)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 48.0...50.0

1000 s: (46.0...52.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90

rpm : 1345...1355 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.10...6.20 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

At 1300 1/min and 700 hPa charge-air pressure, adjust reduced-delivery lever to 11.5...11.6 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MB 6,0 D 25 : 0-60-120-180-240-300 Phasing : 30.09.88 Edition : 30.05.88 Tolerance + - 0 : 0.50 (0.75) Replaces Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 170 1st speed rpm : 1300 Injection pump Pump designation : PES6MW100/720RS1144 Rack travel in mm : 11.00...11.10 EP type number : 0 413 406 138 Del.quantity cm3/ : 7.7...7.9 Governor Governor design.: RQV300...1300MW69 : 0 420 083 102 100 s: (7.5...8.1) Governer no. Customer-spec. information Spread cm3 : 0.3: DB Customer 100 s: (0.6) Engine : 0M366A rpm : 300.0 2nd speed Rack travel in mm: 7.8...7.9 : 125.0 1st version kW Del.quantity cm3/: 0.9...1.3 Rated speed : 2600 100 s: (0.7...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 Inlet press., bar: 1.50 : 9.00...9.40 travel mm 2nd speed rpm : 1350 Test nozzle holder travel mm : 8.10...8.30 assembly : 0 681 343 009 3rd speed rpm : 650 : 4.70...5.30 travel mm 4th speed rpm : 300 Opening pressure, bar : 172...175 travel mm : 1.20...1.60 GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 rpm : 1350 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x1.50x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1300 Set equal delivery quant. Speed : 77.0...79.0 per values ____ Del quantity 1000 : (75.0...81.0) cm3 : 3.50BEGINNING OF DELIVERY Spread 1000 : (6.00) Test pressure, bar: 30...32

RATED SPEED

1st version

Prestroke mm

: 3.70...3.80

Rack travel in mm : 9.00...12.00

: (3.65...3.85)

Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.00 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1425...1455 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 7.8 Testing: rpm : 100 Speed Minimum rack trave: 10.20 Speed rpm : 300 Rack travel in mm : 7.80...7.90 CONSTANT REGULATION rpm : 330...500 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 11.00...11.10 2nd speed rpm : 750
Rack travel in m: 11.90...12.00
3rd speed rpm : 700 Rack travel in m: 12.00...12.20 4th speed rpm : 1100 Rack travel in m: 11.20...11.50 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rpm Del.quantity cm3/ : 70.5...73.5 1000 s: (68.0...76.0) cm3 : 5.00Spread 1000 s: (7.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

rpm : 1340...1350 Speed

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STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

rpm : 300 Speed Rack travel in mm : 7.80...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 8,8 N Edition : 13.06.88 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 189 Injection pump Pump designation : PES6MW100/320RS1147 EP type number : 0 413 406 142 Governor Governor design. : RQV275...1250MW80 : 0 420 083 128 Governer no. Customer-spec, information Customer : RVI Engine : MIDR 060226 : 133.0 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar : 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Prestroke mm

MO1

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.50...3.60 : (3.45...3.65)

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm: 1250 1st speed Rack travel in mm : 10.70...10.80 Del.quantity cm3/: 9.6...9.8 100 s: (9.4...10.0) Spread cm3 : 0.3100 s: (0.6) rpm : 275.0 2nd speed Rack travel in mm : 7.20...7.30 Del.quantity cm3/: 1.0...1.4 100 s: (0.8...1.6) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1475 travel mm : 9.20...9.60 2nd speed rpm : 1300 : 7.80...8.00 travel mm 3rd speed rpm : 500 : 3.00...3.60 travel mm 4th speed rpm : 275 : 1.00...1.40 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed Aneroid pressure h: 750 96.0...98.0 1000 : (94.0...100.0) Del.quantity cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 45...53 Testing: 1st rack travel in: 9.70

Firing order : 1-5-3-6-2-4

Speed rpm : 1315...1325 2nd rack travel in: 4.00 rpm : 1420...1450 Speed 4th rack travel in: 1600 rpm : 0.60...1.60 Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring : 275 rpm Rack travel in mm: 3.4 Testing: rpm : 200 Speed Minimum rack trave: 8.90 rpm : 275 Rack travel in mm : 7.20...7.30 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 Lbw Pressure hPa : -: 9.10.,.9.20 Rack travel mm 1/min : 500 Speed 1st pressure hPa : 220

Measurement

Rack travel in m: 9.80...9.90 2nd pressure hPa : 295

Rack travel in m: 10.00...10.30 3rd pressure hPa : 750

Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750 : 800 Speed rpm

Del.quantity cm3/: 92.5...96.5 1000 s: (90.5...98.5)

cm3 : 5.00 Spread 1000 s: (7.0)

Ameroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 58.0...60.0

1000 s: (56.0...62.0)

BREAKAWAY

MO2

1st version 1mm rack travel less than

full load rack tr: 10.70

rpm : 1315...1325 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...120.0 1000 s: (97.0...123.0) Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 7.20...7.30 Del.quantity cm3/: 10.0...14.0 1000 s: (8.0...16.0) cm3 : 3.50

Spread 1000 s: (5.00)

Remarks:

Set start-of-delivery sensor at prestroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : RVI 8,8 Q Phasing : 0-60-120-180-240-300 Edition : 30.09.88 : 16.06.88 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 190 1st speed rpm : 1250 Injection pump Pump designation : PES6MW100/320RS1154 Rack travel in mm : 12.90...13.00 EP type number : 0 413 406 144 Del.quantity cm3/: 9.9...10.1 Governor Governor design. : RQV275...1250MW80 : 0 420 083 128 100 s: (9.7...10.3) Governer no. Customer-spec. information Spread cm3 : 0.3Customer : RVI 100 s: (0.6) : MIDR 060226 Engine rpm : 275.0 2nd speed 1st version kW : 128.7 Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 1.8...2.2 Rated speed : 2500 100 s: (1.5...2.2) cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 2 417 413 033 GUIDE SLEEVE TRAVEL 1st speed rpm : 1475 Inlet press., bar: 1.50 : 9.20...9.60 travel mm rpm : 1300 2nd speed Test nozzle holder : 7.80...8.00 travel mm : 0 681 343 009 rpm : 500 assembly 3rd speed : 3.00...3.60 travel mm rpm : 275 4th speed Opening pressure, bar : 172...175 : 1.00...1.40 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 Outside diameter rpm : 1300 Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1250 Set equal delivery quant. Speed per values Aneroid pressure h: 800 : 99.5...101.5 Del.quantity 1000 : (97.5...103.5) BEGINNING OF DELIVERY : 3.50 Test pressure, bar: 30...32 cm3 Spread 1000 : (6.00) : 3.50...3.60 Prestroke mm

RATED SPEED

: (3.45...3.65)

Rack travel in mm : 16.50...19.50